

MOTOR TREND

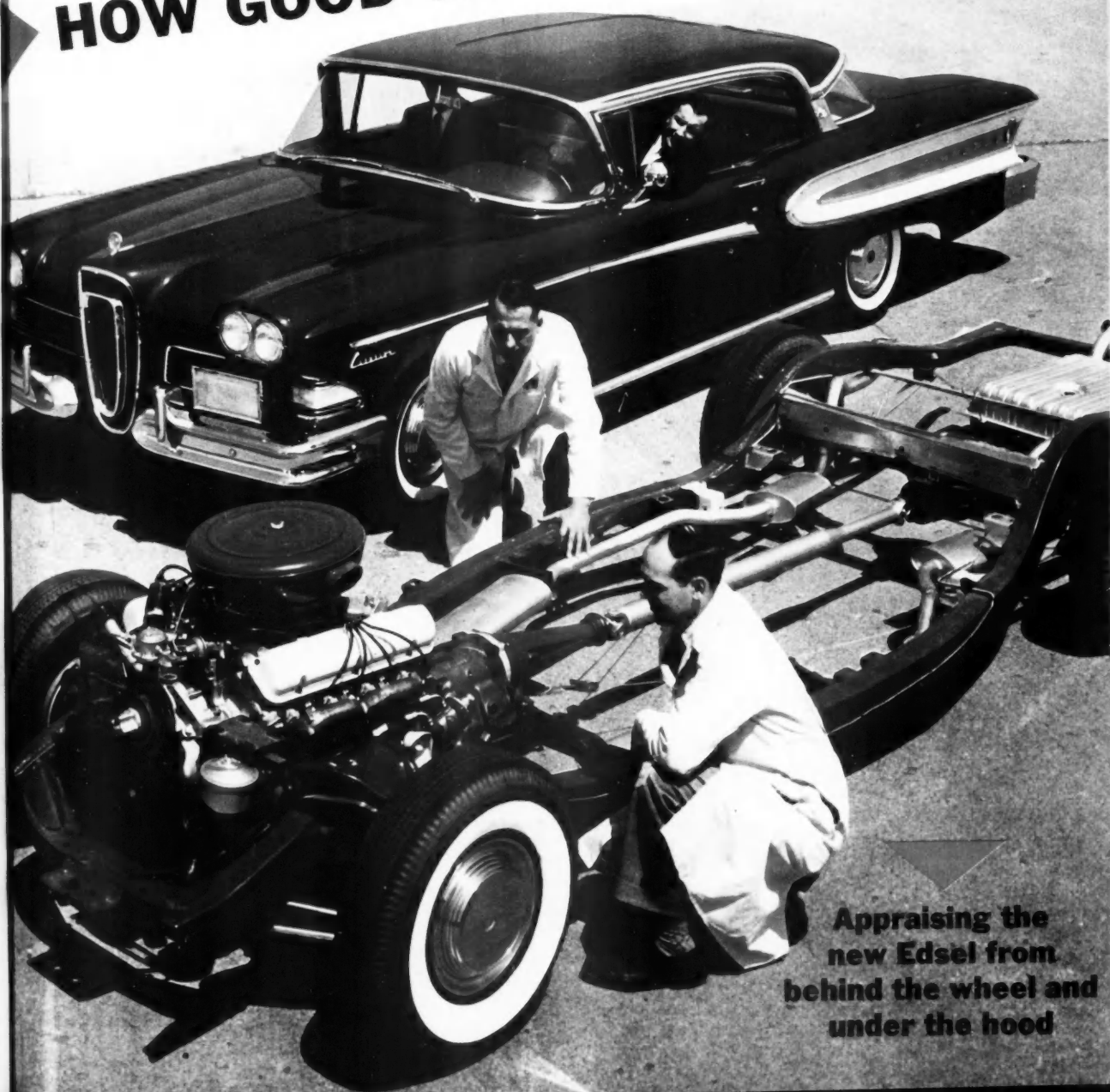
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"I Drove a Gas Turbine Car!"

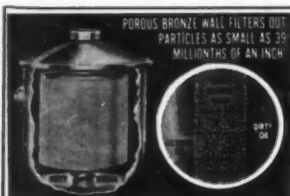
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OCTOBER 1957 25c

HOW GOOD IS THE EDESEL? SEE PAGE 18



Appraising the
new Edsel from
behind the wheel and
under the hood



NO MORE filter "Packs" to buy! **PERMA-BRONZE** Oil Filter—economical . . . yet **FULL SIZE**. Porous bronze element never needs replacing. Easy to clean. 10-year guarantee. With acid neutralizer. Fits your car's filter case. "By-pass" element \$4.95; "Pull-flow" element \$8.95. Item 1. PPD.



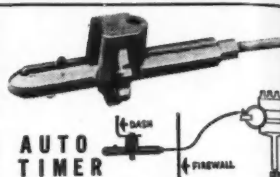
ENGRAVED NAMEPLATES!

Solid copper "idents" for your car, mail box, front door buzzer, shown above, luggage and dozens of other places. 5" long 1/2" wide. Permanent adhesive holds firmly. Give wording—up to 20 letters or numbers. Only \$1.95. Item 2. PPD.



RADAR EYE!

SENSATIONAL . . . Magic "RADAR" eye keeps tab on your car's operation . . . "Spots" trouble! Warns you if tire is going flat, oil getting low, if car won't start, hand brake dragging, engine overheating, etc., etc. Install in 3 minutes. No wires to connect. Neon bulb utilizes car's "frequency waves." Absolutely amazing how it works! Only \$3.95 complete. Item 3. PPD.



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Easy way to get up to 20% better mileage, greater power, more efficient operation. Easy-to-install dash-mounted chrome plated control advances or retards spark instantly to compensate for heat, load, speed, gas octane, etc. Indicator shows exact position. Accurate worm drive. Only \$6.95. Item 4. PPD.



New Products

MAIL MART

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SPECIAL of the MONTH

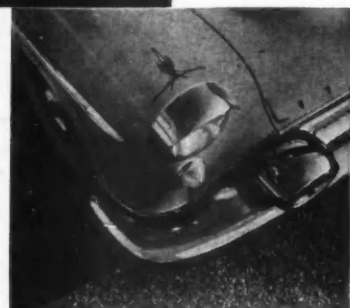
ORDER BY MAIL from the world's largest supplier of special auto parts . . . simply send the coupon below for real money-saving bargains!

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Stripe your car for as little as

95¢ WERE \$1.95



SAVE \$25.00 to \$30.00 . . . customize your car at a fraction of the cost of hand striping. You'll be thrilled how easy it is to apply genuine "CUSTOM-STRIPING" decals. Arrange any way you like. Original designs by famous Harbeck. Each set available in white, rich red, black . . . or lustrous gold. Specify set and color wanted. Item 5. PPD.

Set "A"—For headlights, dashboard, other beauty touches. . . . 95¢
Set "B"—Like Set A plus 12 extra designs for the center of the hood, corners of rear deck, etc. (includes straight lines). . . \$1.85
Set "C"—Complete Deluxe stripe kit for your car—36 designs. . . 2.75

NEW Economy Striping Kit — 78¢
Priced low (Not Shown). Item 6. PPD.

SHOW your EMBLEM!



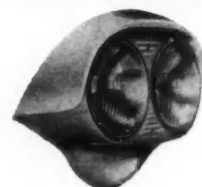
NEW . . . car Emblems for clubs, professions, lodges, etc. Large 4-inch Emblems of beautiful thick-cast aluminum . . . highly polished, with correct colors in enamel. State Emblem. Only \$1.98 each. Item 9. PPD.

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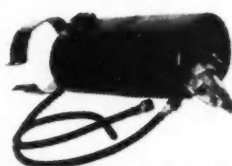
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THE 1960 LOOK FOR 1957 FORDS!



Dramatic new appearance—wonderful lighting improvement. 300% more light—(400% when you use all 4 lamps for highway driving)—100 feet more sight distance. Light the "danger" area! Increases car value many times its cost. Precision engineered unit "slips" in—fits perfectly. Complete with lamps and wiring harness. Price includes both pairs. Prime painted \$56.50. Chrome plated \$72.50. Item 7. PPD.



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You'll NEVER run out of gas. Just lift hood, turn auxiliary valve—you've got fuel to get you to the next service station. With 3/4-gallon steel tank, porous bronze filter, gas line and brackets. Worth much more. \$3.95. Item 8. PPD.



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TRADE MARK
Doubles Engine Life...
For the motorist who wants to combat the two chief causes of engine wear . . . Saves your car! Fights corrosive engine acids . . . captures microscopic ferrous grit. Surpassed only by Deluxe model at the right. Item 10. Standard model—\$2.45. PPD.



WHY PAY MORE

Neutra-Plug's active alloy element neutralizes corrosive engine acids that eat away at the very vitals of your engine. Powerful Alnico magnet captures tiny abrasive grit particles that cut and scratch precision machined surfaces.

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5805 E. Beverly Blvd., Dept. 788, Los Angeles 22, Calif.

Phone **RAYMOND 3-3671**

Gentlemen: Please rush me the items circled at right:

1 2 3 4 5 6 7 8 9 10 11

My car is . . . Year . . . Model . . . No. Cyl. . .

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Name . . .

Full Price Enclosed

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\$. . .

City . . . Zone . . . State . . .

20% Deposit. Send C.O.D.

ORDER BY MAIL TODAY! Satisfaction guaranteed or your money back. Send currency, check or money order and we pay postage on items marked Ppd. Others P.O.B. Los Angeles. 20% deposit required on C.O.D.s (no C.O.D.s outside U.S.A.). California customers please add 4% Sales Tax.

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THE COVER: Introducing America's newest car—the Edsel. Complete information on pages 18-25.

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Subscription RATE: \$3.00 per year; 2 years—\$5.00. Above rates for U.S., its possessions, Canada; all other countries: one year—\$4.00; 2 years—\$7.00. Single copy 25c. On sale at newsstands throughout the country.

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ADVERTISING: Los Angeles office—5555 Hollywood Blvd., Los Angeles 28. Midwest office—1514 Book Bldg., Detroit 26. Phone Woodward 3-8660. Chicago office—360 N. Michigan Ave., Chicago 1. Phone FRanklin 2-6067. Eastern office—550 Fifth Ave., New York 36. Phone Circle 6-1365. Closes 25th of 3rd month preceding publication. (See SRDS)

CONTRIBUTORS: Should be mailed to 5555 Hollywood Blvd., Los Angeles 28. They must be accompanied by return postage and we assume no responsibility for loss or damage thereto. Any material accepted is subject to such revision as is necessary in our sole discretion to meet the requirements of this publication. Upon acceptance, payment will be made at our current rate, which covers all authors and/or contributor's right, title, and interest in and to the material submitted including but not limited to photos, drawings, charts and designs, which shall be considered as text. The act of mailing a manuscript and/or material shall constitute an express warranty by the contributor that the material is original and in no way an infringement upon the rights of others. Printed in U.S.A. by Pacific Press Inc., Los Angeles.

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Testing GM's Hottest Car for '58



(Advertisement)

McCulloch Supercharger



>> Tips

by
John Thompson

FLASH FROM DETROIT!—Latest word from the Motor City is that the 1958 Plymouth will have an even higher cubic inch displacement than its famous, well-powered '57 predecessor. The wraps are slated to come off the new model early in November. The larger engine, when combined with a McCulloch supercharger, should make the Plymouth one of the "performance giants" of '58.

Speaking of happenings in Michigan, the team of Andy Hotten and Dean McCann created considerable interest recently at the Tecumseh drag races when they bettered 100 mph for the quarter-mile with their McCulloch supercharged '57 Ford. Entered in the super-stock class, the 312 cu. in. Ford spread-eagled the field in winning the championship trophy.

The West Coast wasn't without its records, either, as Jack Bailey took his stock bore and stroke '57 Corvette up to a sizzling 112.35 mph in the standing quarter-mile at Santa Ana. Equipped with three carburetors and a McCulloch supercharger and enclosure box, Bailey's car bettered its non-supercharged record by more than 15 mph, and its previous supercharged mark by almost 3 mph.

While mentioning the terrific speed marks that are being racked up in the drags, it might be apropos to point out that McCulloch superchargers are not built solely for speed—or for speed enthusiasts. True, they add up to 20 mph to a car's top speed and as much as 40% in horsepower, but it's probably not widely known that they improve a car's overall safety, too!

Here's what I mean: The McCulloch supercharger provides a great amount of reserve horsepower for use in passing at highway speeds. Law enforcement officials will tell you that *lack of acceleration* when you need it is one of the biggest reasons for auto accidents on the highway. How many times have you been in a tight driving spot and wished you'd had the extra acceleration to get you out of trouble? If you're an average driver, chances are it's happened almost every time you've gotten out on the road.

And another fact to remember is that for all its good performance points, the McCulloch supercharger causes no loss in engine smoothness or reliability, even at idling speed. I think that this, plus the safety aspects of the McCulloch blower, accounts for the tremendous acceptance the product has had from owners of stock passenger cars and station wagons—people who wouldn't normally consider supercharger prospects.

If you want all the details on the McCulloch supercharger, including price, the name and address of your nearest dealer and a free illustrated folder, just write to me, John Thompson, Paxton Products, 929 Olympic Blvd., Santa Monica, Calif. I'll see that you get this information in a hurry.

That's all for now . . . see you next month.



from the editor

WITH MORE AND MORE vehicles on the road not only every year, but every day, it seems unbelievable that every state in the country *does not* have a compulsory vehicle safety check. The arguments against such a check usually revolve around the possibilities of graft and corruption creeping in. Isn't that possible anywhere?

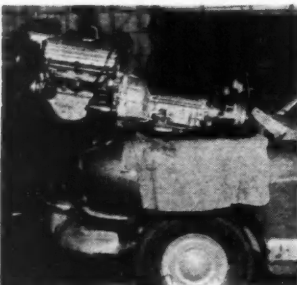
How many cars on the road today are safe enough for speeds above 50 mph? Do those cars coming toward you on a narrow asphalt road have tires that won't blow out and cause the car to hurtle at you the next instant? Is the steering in such condition that the next jar from a bump in the road won't cause a vital part to break? How else can such things be found out except by a safety check—compulsory or otherwise?

Fourteen states—*only 14*—have compulsory safety checks. The drivers in the other 34 states must first volunteer to have their cars checked by the Community Vehicle Safety-Check (sponsored by the Inter-Industry Highway Safety Committee and *Look Magazine*), then hope that the majority of other motorists have done likewise.

This is the fourth year of the Vehicle Safety-Check, and our hats are off to these winners:

Indianapolis, Ind. and Trumbull County, Ohio were named Grand Award winners for having the most outstanding city and community safety-check programs in the nation.

National Awards of Excellence for top city and county programs went to Great Bend, Kan.; Fargo, N. D.; Fresno, Calif.; Wright Co., Iowa; Huntington Co., Ind.; and Orange Co., Fla.



OUT WITH THE OLD, in with the new. The MT All-Purpose Car is progressing, but slowly. The old Continental six-cylinder engine has been hoisted out, and the new DeSoto V8 has been placed into position. We've run into a lot more snags and difficulties than we'd anticipated, though. Next month we're hoping to give you the full story on just how the engine was installed.

THERE'S STILL TIME for you to make that European trip you've dreamed about these many years. And if you've been wanting to buy a foreign car, you could combine the two ideas into one. Fly over, pick up your car there, ship it back, and enjoy your new car here. You can arrange for this through auto clubs, airlines like Pan-American Airways, and most of the local dealers in foreign products.

The latest company to announce a European travel plan is the Continental Car Combine of New York. They've been appointed overseas distributor for England, France, W. Germany, Spain, Switzerland, and Italy by American Motors Corp. This way, you can order a Rambler or Metropolitan here through C.C.C., pick it up over there, and ship it back home when your travels are over.

John Thompson

New Spark Plug Invention!

Nickel-Cadmium



THE INSULATOR... High-voltage patented Ebanite® insulator, developed and used only by Life-Long, has a hardness in the same range as precious jewels. You can identify Life-Long Plugs by the black insulators. This costly new material has 20 times higher thermal conductivity than ordinary insulators.

THE BUSINESS END... New type solid electrodes have no points to burn off! The "business" end of Life-Long Plug utilizes unique nickel-cadmium electrodes to produce fuller, hotter spark arcing from 21 or more points and spreading around the full 360° circle. Life-Long Plugs have approximately 40 times more firing surface than conventional one-electrode plugs, giving more efficient, even combustion.

THE SHELL... Made of a new alloy developed specifically for Life-Long by modern metallurgy. Unlike old style 2-piece shells, the Life-Long shell is one precision-machined piece fused to the Ebanite insulator under tremendous hydraulic pressure and induction to make a positive seal. This prevents "blow-by," major cause of failure in plugs with 2-part shells.

PLEASE NOTE: The Life-Long spark plug is different in every way—not just an "improved" plug, but an entirely new engineering development!

FREE!

\$4.98 Reactor Drain Plug



This is the famous crankcase drain plug you've read about that destroys damaging engine acids... gives you 100,000 miles without a major engine repair. Saves oil, gas, repairs. Sold everywhere for \$4.98... yours FREE with a set of Life-Long Spark Plugs. Get yours now! Use coupon.

OPPORTUNITY FOR DISTRIBUTORS

Many choice territories are still available. All territories are awarded on an exclusive basis, protected by a written franchise. No charge for franchise. Write, wire or phone today. Cable: Carparts, Los Angeles.

LIFE-LONG NICKEL-CADMIUM PLUGS ARE GUARANTEED TO:

- 1—End plug replacement costs
- 2—Stop up engine horsepower
- 3—Increase your gasoline mileage
- 4—Improve acceleration
- 5—Give smoother idling
- 6—End engine knock
- 7—Never need regapping

With the introduction of this sensational new-type Life-Long Nickel-Cadmium Plugs, the spark plug is no longer the "troublesome, most often-replaced" part of your automobile. In fact you will never have to replace the plug in your car once you install a set of Life-Long Plugs!

LIFE-LONG—WORLD'S ONLY PLUG WITH FULL-CIRCLE FIRING

Life-Long's revolutionary "ring of fire" principle is the first major improvement in plugs in 25 years. Instead of small "spot" spark arcing between the same two points, the Life-Long Plug makes a hot spark 400% to 500% greater in volume, spread around the entire circumference of the solid electrode. The piston stroke of today's high-compression engines is so powerful that it can actually "blow out" the spark produced by old type plugs. Blowing out is impossible with Life-Long's full-circle spark.

Heat is spread around the full perimeter, resulting in cooler electrode temperature. The causes of wear, burning and insulator failure are eliminated.

SELF-CLEANING. Because the Life-Long Plug fires simultaneously inside and outside the shell, fuel mixture is ignited at the same time a powerful turbo wiping action, created by the piston stroke, burns and blows out the carbon. Power loss is prevented and you get greatly increased horsepower and gasoline mileage. In a series of road tests, some cars have shown 10 horsepower gain, mileage increase 15% and more.

OIL INDUSTRY RESEARCH DISCOVERS AMAZING ELECTRODE SECRET

Research engineers of leading oil companies recently revealed that nickel-cadmium is the most perfect material yet developed for the electrodes of spark plugs designed for modern high-compression, internal combustion automobile engines. The nickel-cadmium solid electrode of the Life-Long Plug has ideal characteristics of extremely high conductivity and durability, being able to withstand temperatures of 3500° indefinitely.

BUILT-IN CADALLOY CATALYST

These same research engineers also discovered that a new alloy (which we call Cadalloy) introduced into the combustion chamber of a plug, acts as a catalyst to produce the most efficient fuel combustion. Life-Long Plugs are the first to use this important discovery!

ATTENTION, OWNERS OF 12-VOLT AUTOS. Conventional plugs, designed for 6-volt electrical systems, do not function well in modern 12-volt systems. Life-Long Plugs are designed to handle twice the voltage capacity of 6-volt systems. If your car has a 12-volt system, don't be misled—only Life-Long gives you full plug efficiency!

LIFE-LONG PLUGS ACTUALLY COST LESS! A set of Life-Long Nickel-Cadmium Plugs will outlast six or more sets of ordinary plugs. You end replacement costs completely. Yet the set of 6 Life-Long Plugs costs only \$9.95 each. Set of 8 only \$11.95.

ORDER REGISTERED SET FOR YOUR CAR NOW. Life-Long Nickel-Cadmium Spark Plugs come to you in a tamper-proof, laminated plastic container. Sealed at the factory, your Life-Long Plugs are not touched until you break the seal.



CARPARTS CORPORATION, DEPT. MT-1057
1500 Franklin Ave., El Segundo, Calif.

Please mail postpaid _____ registered sets of Life-Long Nickel-Cadmium Spark Plugs guaranteed to increase my car's mileage, speed and horsepower (Set of 6, \$9.95; set of 8, \$11.95).

Name _____
Street _____
City _____ Zone _____ State _____
Year of Car _____ Model of Car _____
Make of Car _____ No. of Cylinders _____
I enclose ☐ check ☐ cash ☐ money order

CARPARTS
Corporation

1500 Franklin Ave., El Segundo, California

POWER TIP "fires up" all winners in '57 Mobilgas Economy Run



IMPERIAL V-8 Sweepstakes Winner and First in High Price Class

Victory sweep by Chrysler-built cars proves Auto-Lite Spark Plugs with Power Tip give top performance and economy at all speeds

Here's why... At low speeds the projecting Power Tip gets hot fast, operates hotter to burn away fouling deposits which impair engine performance in city driving. At high speeds, Power Tip is cooled by the richer air-fuel mixture to check power-wasting pre-ignition caused by overheated spark plugs. Ask your dealer for Power Tip today!

Power Tip delivers peak performance in overhead-valve V-8 engines and in most overhead-valve 6's in all these cars: Buick, Cadillac, Dodge, Chevrolet, Chrysler, De Soto, Plymouth, Hudson, Imperial, Ford, Lincoln, Mercury, Nash, Oldsmobile, Packard, Pontiac, Rambler, Studebaker.



THE POWER TIP
MAKES THE
BIG DIFFERENCE!



PLYMOUTH V-8 First Place,
Low Price Class



DODGE V-8 First Place,
Low-Medium Price Class



CHRYSLER V-8 First Place,
Upper-Medium Price Class

AUTO-LITE® SPARK PLUGS WITH POWER TIP

Auto-Lite makes a complete line of spark plugs, including Standard, Resistor, Small-Engine, Transport, Aircraft, and Diesel-Starting.

LETTERS



WEE FOLK DID IT

Gentlemen:

In the August issue of MT there is an article titled "How Your Favorite Car Compares in Performance." In the table in that article you have listed the Chevrolet Corvette with fuel injection and manual transmission giving out 283 bhp. The time for the 1/4-mile of the Corvette is 14.9. The T-bird has a time of 13.9. Is this a misprint or an extra fast T-bird?

L. J. Fields

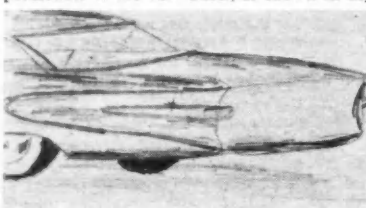
Rayne, La.

(Ed. note: A number of readers asked the same question. We investigated and found a pesky little gremlin had messed up the figures while our backs were turned. The correct 1/4-mile time for the T-bird is 17.3.)

MYSTERIOUS TRANSPORT

Dear Sir:

I noticed a truck carrying unknown cars. They looked something like your drawing prediction of the new Edsel, as shown in my

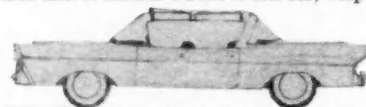


sketch. Could they have been the new Edsel? Kenneth Elberts Scarsdale, N.Y.
(Ed. note: They were not Edsels... at least from your sketch.)

LOOKING AT LINCOLN

Gentlemen:

This is what I think the '58 Lincoln will look like. It features a built-in roll bar, wrap-



over windshield, and pushbutton, butterfly doors. Height is 55 inches. Thomas Davis St. Petersburg, Fla.

STICK TOGETHER, STYLISTS

Gentlemen:

I would like to start an automobile styling club for people aged 13 to 16. For free membership card, would applicants please enclose one of their own designs, give age, address and favorite 1957 car.

P. T. Apps

1532 Atoka Dr.

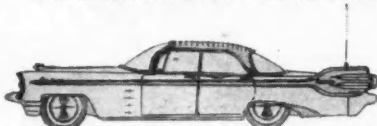
RR1 Port Credit

Ontario, Canada

PEEKING AT PONTIAC

Gentlemen:

Here is what I think the '58 Pontiac Star



Chief four-door Catalina hardtop will look like.

T. J. Adams

Gurnee, Ill.

CONJECTURAL CHEVY

Gentlemen:

This is a sketch of my prediction of the



profile of the 1958 Chevy Bel Air convertible. William Myers, Jr. Yarmouth, Me.

WELL, ON TO THE '58 MODELS!

Gentlemen:

My 1957 Dodge convertible lived up to all of the advertising claims as to ride, comfort and appearance.

When is the workmanship going to advance with the design? Every visible screw and bolt on my car took at least two complete turns to tighten. The chrome molding looks as if it were meant for another car.

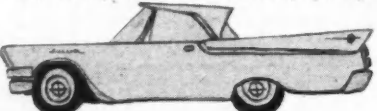
Gerald Cook

Newark, N. J.

NEW P.U.

Dear Sirs:

Here is my idea of the 1958 Dodge pickup.



This could be priced as the other two "fancy" pickups.

David Brenneman

Elida, Ohio

PROPHESED PLYMOUTH

Gentlemen:

Here is my idea of the '58 Plymouth. I believe it will be interesting to note just how



close these designs are when the new models come out this fall.

Gordon Wise

Lebanon, Pa.

MOTOR

TREND Subscription Dept.

5959 Hollywood Blvd., Los Angeles 28, Calif.

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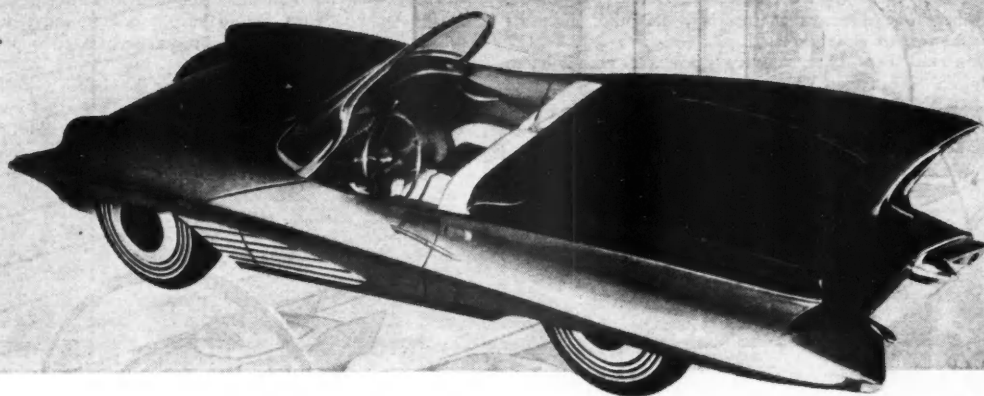
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in the FISHER BODY CRAFTSMAN'S GUILD MODEL CAR COMPETITION for 1958

JUST this past year, teen-age boys the country over designed, built and submitted entries typified by the brilliantly styled, beautifully constructed model pictured here.

It was no easy assignment. But to the 1,038 winners, it was well worth all the thought and preparation—all the long hours of careful, patient work. Their reward: satisfaction in jobs superlatively done — and the wonderful awards listed above.

Now, as the '58 competition opens, this same great opportunity is once again open to boys all over America. That means *you*—and any other boy with an original idea about how the Cars of Tomorrow should look—plus the skill to make his idea come alive in a carefully made model.

You may design and build any one of the following types of model cars: hardtop, sedan, convertible, station wagon or sports car. It may be of wood or any other durable material. It may be made with the simplest of household tools. All you do is follow the few simple rules in the free booklet, "How to Build a Model Car" — which also contains some invaluable suggestions.

But don't delay! *Right now* is not a minute too soon to enroll for '58 competition. You'll need every spare second to design and build yourself a winner by competition's close next June. Good luck!

Fisher Body Craftsman's Guild, Detroit 2, Michigan

Please enroll me in the '58 Model Car Competition. Send me my Craftsman's Guild Membership Card and FREE instruction booklet, "How to Build a Model Car."

NAME _____
(Print) First Name Middle Initial Last Name

ADDRESS _____
(Print)

CITY & ZONE _____ STATE _____
(Print)

IMPORTANT: Only boys born in the following years are eligible. Check the year of your birth below:

SENIOR DIVISION

1937 ☐ 1940 ☐
1938 ☐ 1941 ☐
1939 ☐

JUNIOR DIVISION

1942 ☐ 1945 ☐
1943 ☐ 1946 ☐
1944 ☐

Dept. VI

Editor's Note: Quite unintentionally, we got right back into the middle of this when, almost simultaneously, we received articles from Durban, South Africa and Phoenix, Ariz. One was "What's Wrong with U.S. Cars?" and the other "In Defense of Detroit Styling." Where one discusses engineering, the other discusses styling. Yet the two are closely related.

Before you read these divergent views, however, permit us to quote from an SAE paper, "How European Motorcar Design Evolved" by Henry Lowe Brownback, Technical Counsel for Renault. Presented at the Summer Meeting of the Society of Automotive Engineers, it began:

"The reasons for the evolution of motorcar design as it has

worked out in the different countries of Europe are very involved, depending upon economic conditions, road surface and grade, and above all on the mass national personality of the buyer. It is doubtful that the automotive engineer in Europe, any more than in the United States, would have produced the type of vehicle which he has produced had he not been acted upon by outside influences beyond his control.

"The motorcar is rarely in Europe the simple tool of transportation and/or errand runner that it is in the United States. It often or usually represents the greatest capital expenditure which the owner can or will make . . ."

And now, on to the Great Debate.

The GREAT

What's Wrong with U.S. Cars?

by C. Fellowes

DOES THE AVERAGE American automobile come up to the standards the ordinary motorist expects of it in countries overseas? Fifteen years ago the answer was definitely "yes." We found that the European car could not stand up to the rough conditions in South Africa and was only suitable for town use.

In South Africa we see both European and American cars in equal competition, and the advantages and disadvantages of both are very obvious. First of all, there is the question of size. You need about 25 feet to park your vast perambulating drawingrooms. My own car, a British Morris Oxford, seats six people quite comfortably, yet it is only two-thirds the length and three-quarters the width of the average U.S. job, and it will take nearly as much luggage. Seating in American cars is unsatisfactory. At first sight Detroit products appear magnificently roomy and comfortable, but after 400 miles or so the angle of the driver's seat is such that he becomes thoroughly tired across the shoulders. In a good British car one can drive all day without fatigue.

Then there is that ridiculous dashboard—acres of it—and only one small cubbyhole (which the driver cannot reach) in which to put parcels and handbags. Even the smallest Continental car has a long shelf under the dash which will take several parcels.

Dust-proofing is another matter. Most American cars suck in dust as if the driver and his passengers are expected to like it. Many British cars are so airtight that it is difficult to close the last door unless one of the windows is open. Even if they are open, very little dust seems to enter the car no matter how dusty the road may happen to be.

Your brakes are poor. It would seem that there is not sufficient area of brake lining for the weight of your cars. The fact remains that, compared with British cars, they are not sufficiently powerful in an emergency, they wear out more quickly and they "fade" when used continuously in mountainous country.

Your automatic gears make driving ridiculously easy, but they are expensive and costly to repair.

Your engines, vast powerplants alleged to develop enormous horsepower, drink petrol like thirsty elephants. How much of that power really reaches the rear wheels? On straight highways you may occasionally be able to use their great speed, but in hilly country or on rough and winding roads you don't stand a chance against a little Volkswagen.

Here in South Africa there is a particularly horrible 160 miles of road. My Morris takes it so well that there is no need even for a check-over when I get back. A friend who owns one of your big cars may get there 15 minutes sooner, he may have a slightly more comfortable ride, but it costs him \$50 in repairs every time he takes the trip.

What really makes me shudder is your steering, road-holding and cornering. Compared with the average cheap British car your roadholding is poor; compared with the best from Britain it is just plain frightful. You approach a sharp bend in a Morris or a Volkswagen. A quarter turn of the steering wheel, press the accelerator, and the car shoots round the bend without the least fuss or bother. There is very little sway, no sign of skidding or tail-swing and no tire squeal. Now you approach the same corner at the same speed in one of your great "lounge-mobiles." Almost a

complete turn of the steering wheel, the car feels as if it objects to going round the corner, it sways over, the nose dips and the tires screech on the tarmac or skid outwards if the surface is gravel. What a difference!

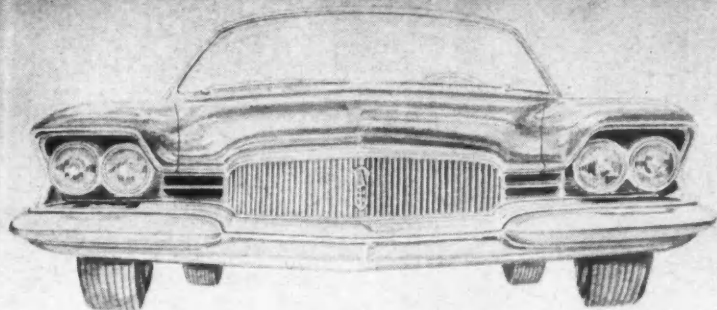
Parking. In a British car you find a parking bay and stop level with the car in front. Right hand down a quarter turn of the steering wheel, then left hand down half a turn and you're in, into a space where a "Colussumobile" would never go even if you twiddled the steering wheel all day.

Your power steering is so beautifully light, but why in Heaven's name is it not more direct? A quarter of a turn of the steering wheel in a good British car is less tiring in the long run than a complete turn of the lightest steering.

The root of the trouble with American automobiles would seem to be that they are now designed primarily by the stylists and fashion experts, while European cars are built by engineers and drivers. It's your own fault, United States motorists! All you have asked for is a showy luxurious palace on wheels—that is all you've got.

Demand more from your manufacturers than good outward appearance and comfort when the car is standing in the showroom. Ask for cars with better steering, easier handling, longer life, better driving positions, more economy, greater reliability and sturdiness. There was a time when it was said that British cars were made for town roads while the Americans were built to take the rough stuff, but now the position is reversed.

Your automobile industry is far and away the biggest in the world. They can produce the best car in the world, but they will do so only if you demand it.



IDEAL SPORTS CAR as designed by author Bruce Campbell includes the styling concepts of several U. S. auto firms, yet possesses a distinctive sports car air of its own.

DEBATE

In Defense of Detroit Styling

by Bruce A. Campbell

WHEN EUROPEAN CARS began to appear here in numbers sufficiently large to be noticed by the man on the street, the great debate concerning foreign styling vs. Detroit's began. The proponents of Europe's autos avow loudly of the alleged virtues of Farina's "purity of line," or of Bertone's "sculptured effects," while ignoring completely entirely new styling ideas originating here.

When an American manufacturer introduces his new models, the "purists" point their fingers in scorn. If they do not denounce the design itself as idiotic, a barge, or overstuffed, they charge plagiarism. They seem to forget the simple fact that when a new car hits the street its styling is already several years old. Right this minute stylists are working on their employers' 1960 and 1961 models. You can be sure these men are not going to pilfer a styling gimmick currently in use overseas. It would be so obviously outdated by the time the car went into production that the stylists would find themselves standing wearily in line waiting to pick up their unemployment checks.

There are those aficionados who turn their collective noses in the air at the mere mention of a domestic vehicle. It is with such that this article takes issue. While this writer is a great admirer of European styling, I must say that I feel American design, if not altogether superior, is at the very least the equal of that from across the Atlantic. Good design is good, bad design is bad, regardless of its origin.

Still, the styling of current domestic models fails to put up a good showing when compared to the fleet functionalism of a Ferrari Monza, the inbred Teutonic tautness of line of the Mercedes-Benz 300-

SL, or the graceful, delicate curves of a Jaguar. However, such comparison is ridiculous. It is like comparing an Indy roadster with a Greyhound bus. Each serves its own individual function admirably, but to compare one's styling against the other is asinine.

Exactly what are our own Fords and Chevys, Chryslers and Cadillacs? They are the basic transportation of our people, nothing more. As basic transportation they more than meet the purpose for which they are designed. The only cars from overseas with which they can logically and rightfully be compared are their European counterparts. And what are these? Surely not such symphonies in steel as the Pegaso or Alfa-Romeo, but rather cars like the Fiat 600, or that perennial contender for title of "World's Homeliest Automobile," the Volkswagen. While the VW is to be admired tremendously for the quality of its construction, its engineering features, its economy and reliability, and its relatively low delivery price, even its most

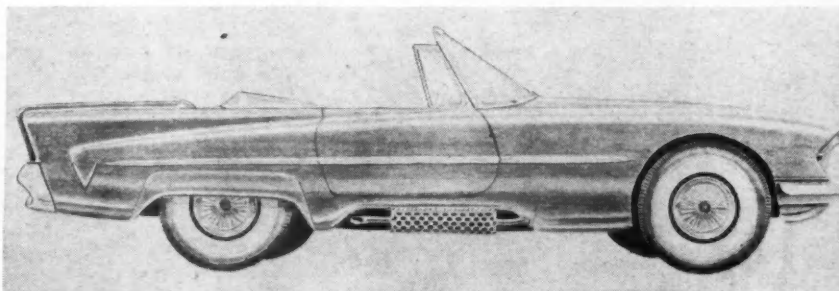
ardent devotees must concede that style-wise it is lacking more than a little in anything of esthetic value.

How do these cars compare in eye appeal with our own products? They are without a doubt some of the worst examples of automobile styling in the world. It is not completely impossible to design an attractive small car—one that has good balance and harmony of line.

In France, Italy, and Germany only a very small minority of the manufacturers appear to take any interest in the appearance of their products. One is the German BMW firm. This company's cars, the touring as well as the sports line, are good looking, stylish. And the entire BMW line was styled by an American of German extraction who has lived and worked in this country for many years! When a foreign company needs an industrial stylist it is from the U.S. that they get him.

All red-blooded American men are passionate admirers of beauty, both in their motorcars and in their women, but very

continued on page 17



SPORTS CAR SKETCH embodies an approach to combination racing-street use.

SPOTLIGHT

ON

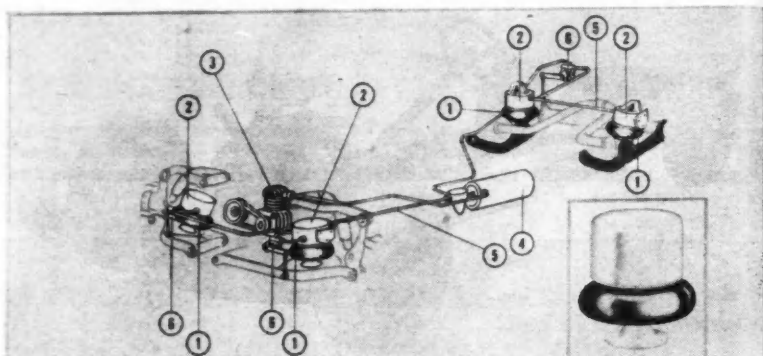
DETROIT

WE HAVE OFTEN SAID that brakes on American cars could (and should) be improved. By this we mean down-to-earth engineered, basic improvements designed to realistically reduce stopping distances in a safe manner and do it every time. We have therefore asked our Engineering Editor, John Booth, to give us (and you) a report on new brake developments you may expect from Detroit in '58 or '59.

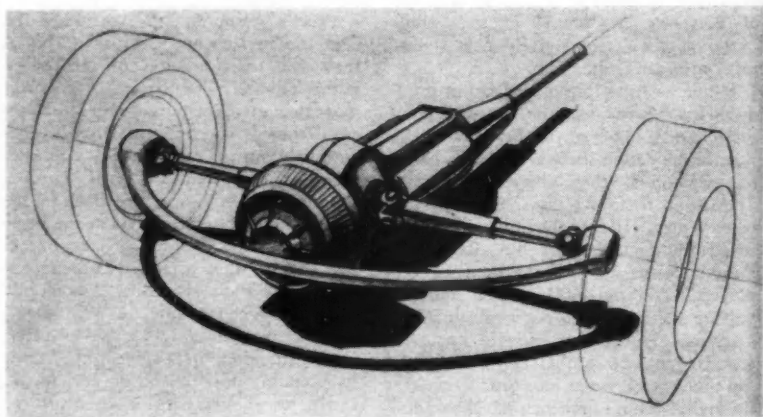
A BRAKE'S ABILITY TO STOP is in direct proportion to how much heat it can create through friction and how rapidly it can dissipate this heat. No matter how engineers approach the problem, most of them now concede that the successful brake design of tomorrow must operate at full potential without depending on anything but a superficial dissipation of heat, or on cooling by mechanical means, as the Raybestos-Manhattan, Inc. system.

IN THIS SYSTEM the heat build-up within the brakes is dissipated by a constant flow of water through hollow shoes. Each shoe is connected by a flexible line to the engine's water cooling system (see illustration). Tests indicate this new brake is virtually immune to brake fade (heat buildup) and that brake life is up to three times normal. The cost is said to be within present production feasibility; converting a stock passenger car's brakes takes about three hours.

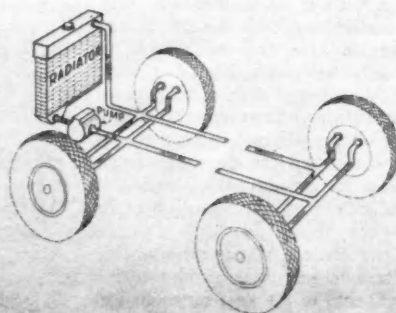
A FUTURE DE DION TYPE of transmission differential unit may appear in '59 production. It would probably incorporate a separate hydraulic brake or retarder of large capacity at the rear of the differential (see drawing). It would work in conjunction with the



FIRESTONE'S arrangement of full air suspension is remarkably like some that will appear as optional equipment in 1958. An interesting feature of this system is the use of trailing links (those horizontally-located arms that begin at the frame side rails just forward of the rear bellows). Component parts of this Firestone system are 1) air ride bellows, 2) air reservoirs, 3) air compressor, 4) central air supply tank protected by frame rail, 5) air supply lines, and 6) leveling valves, one located at the front and other at the rear.



PROJECTED de Dion rear-end has integral hydraulic retarder brake system.



WATER COOLED brake system developed by Raybestos-Manhattan increases brake life and is virtually fadeproof.

regular brakes and would also serve as a hand-operated emergency brake. If it had its own master and slave cylinder, its advantages would be twofold; it would act upon the rear wheels in the event of a main system failure, and would increase effective braking area by up to 35 per cent.

ANOTHER BRAKE PRINCIPLE undergoing encouraging tests approaches the problem from the opposite extreme. This brake is designed to operate *in spite* of heat buildup. In fact, the hotter it gets, the more efficient it becomes. Essentially it is a multiple spot brake mounted within a protective housing. The designers claim these brakes will operate under extremely high temperatures by use of new alloys. They are silent and completely free of erratic grab, but require the use of a power assist. This brake also incorporates an anti-skid device that prevents wheel lock-up. Brake experts agree that the most efficient braking action in a panic stop is just short of tire skid. This device is designed to do just that regardless of how hard you press the pedal. The principle has been used quite successfully for a number of years on airplanes and could appear in '58, or at the latest, '59.

NEW AND MORE EFFICIENT LINING materials presently under test should give the 1958 production cars an increased safety factor over today's models, but it will take more than just lining to make a notable improvement in braking efficiency.

ADDING FUEL TO A FIRE stirred up in MT in our June issue, Robert S. McNamara, group VP of Ford Motor Co., stated recently that his firm has evidence justifying its safety campaign. Speaking before the Congressional Subcommittee on Traffic Safety, he said, "The use of seat belts in all cars and trucks would reduce the 40,000 fatalities annually to less than 19,000."

ACCORDING TO McNAMARA, Cornell Medical College Crash Injury Research found that "... people wearing seat belts had a reduction in occurrence of any grade of injury by 2½ to 1 over non-users who were injured ..." and "... comparing seat belt users to non-users thrown out of their cars, the dangerous through fatal injuries were reduced by a ratio of 8 to 1."

QUOTING ANOTHER CORNELL REPORT, based upon 1000 light aircraft accidents, "the human body is quite capable of breaking an approved type belt without evidence of internal injuries, thus allaying any fear that seat belts might be more injurious than protective. Despite the attempts of certain people to have us believe that seat belts are dangerous," he added, "the facts to the contrary are so overwhelming as to leave no room for legitimate controversy."

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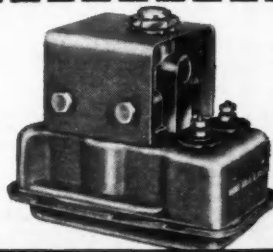
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PRODUCT USE TEST

IN THE PAST TWO YEARS, wide publicity has been given to the Fiberglass method of customizing and repairing body rust-outs and other minor repairs in automobiles. As a result, no less than five or six Fiberglass body repairing and restyling kits have hit the market and are available in most automotive stores.

Thousands of enthusiastic customizers purchased these kits and went home to try their hands at automobile restyling. Most began by tackling simple projects, such as smoothing off hoods and rear decks. Many, however, have gone on to make hooded headlights, new contoured tail fins, molded-in grille shells, and the like—all out of Fiberglass. Some readers have written to MOTOR TREND, registering complaints because of poor adhesion of the Fiberglass to the metal and because of crack-outs in the Fiberglass material itself.

To get to the bottom of our readers' problem, we procured several of these Fiberglass repair kits and went to work testing

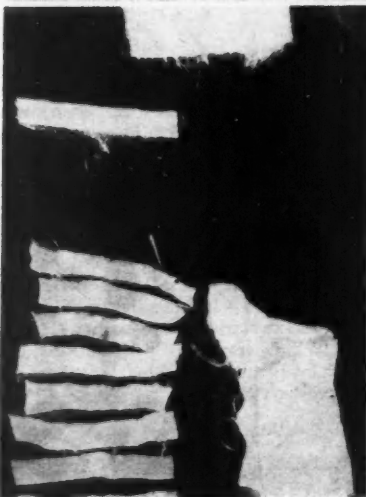
Fiberglass Repair Kits: Polyester vs. Epoxy Resin



STRENGTH of epoxy resin bonding to metal was shown when jeep was lifted off floor before bond snapped.



SHRINKAGE TEST proved that polyester resin (right) contracts, while epoxy (left) grips metal container tightly.



ONLY ONE of the kits tested contained Fiberglass mat; others had cloth. It takes seven layers of cloth to equal the thickness of one layer of mat.

and checking out the materials in a series of comprehensive tests. To begin with, in two of the five kits checked, polyester resin was supplied instead of the new, improved epoxy resin. Also, only one contained Fiberglass mat, while the others had Fiberglass cloth.

In our first test, we filled two shallow metal containers, one with polyester resin, the other with epoxy resin. After adding the catalyst agent and curing until the Fiberglass material was hard, we discovered that no bond of the polyester to the metal had been made, with the resin shrunk completely away from the container (see photos). In the other container, the epoxy resin was firmly bonded to the metal, with no shrinkage whatsoever.

In our adhesion test, a weight scale was attached to a Fiberglass strip bonded at each end of a piece of metal. When bonded with polyester resin, the Fiberglass pulled away from the metal at 125 pounds pull. When

bonded with epoxy resin, the thin layer of Fibreglas parted only after lifting the rear end of a jeep, but it did not pull away from the metal even under this terrific weight.

As previously stated, only one kit contained Fibreglas mat while the others all had cloth. While cloth is all right to use in certain types of repairs or restyling work, we discovered that it definitely should not be used at the immediate surface because the woven pattern in the Fibreglas cloth is almost impossible to cover with resin or paint (see comparison photo).

In another test using a micrometer, seven layers of Fibreglas cloth were equal in thickness to one layer of Fibreglas mat, thus indicating that the mat has the necessary thickness to do a job and still not show any

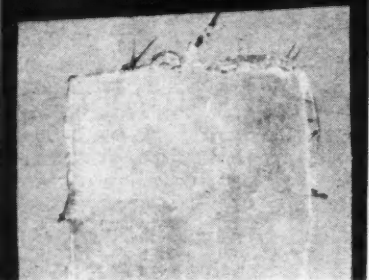
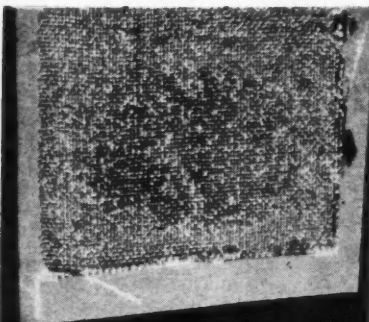


FIGURE COMPARISON indicated that woven cloth pattern is almost impossible to cover with resin or paint; using mat (below) removes problem.

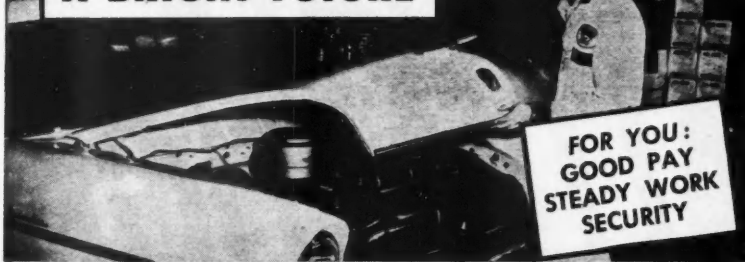
pattern through a painted surface, as is the case when cloth is used.

As further proof of the quality of the one kit which contains all of the correct ingredients for automotive use, we carefully went over all of the Fibreglas work done in the restyling of a 1949 Ford, after the car had been in service for well over a year. We found no cracks in the material, no evidence of a "poor bond" between the Fibreglas and the metal.

The name of the kit that came out with top honors in this comparison test of five kits is "Plastic Surgeon," manufactured by the Woodill Fiber Glass Body Corp., 3121 Oak St., Santa Ana, Calif. So, if you're having trouble with your Fibreglas body repairing or restyling, we suggest you try it. The kit is available at most automotive accessory stores.

—James E. Potter

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"I have made good progress and have had 3 pay raises in 8 months. Before I took course, I knew very little about a car engine. But now I can step up and do most any job."—W. LONG, PA.

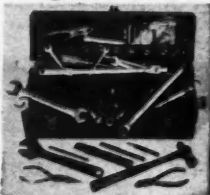
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car owner's



LIBRARY

(In addition to reviewing the latest books on automotive subjects, this column will also present announcements of special catalogs, directories, pamphlets, records, etc. that are of interest to car owners.)

Auto-Europe, Inc., 25 W. 58 St., N.Y. 19, N.Y., has put out a free booklet on "The A B C's of European Auto Travel." They explain rental and purchase of cars overseas, and include information on insurance, customs fees and shipping the cars back. Besides all this, they will provide the road-map routing for a most enjoyable trip abroad.

The Observer's Book of Automobiles is edited and revised by L. A. Manwaring and published by Frederick Warne and Co., Inc. of New York and London for \$1.25. The book is from the same publisher as *Moslems and Liverworts* and *Aircraft*. 102 makes of cars are described briefly with hints for the car watcher. A brief history of the automobile and an explanation of its workings complete the volume.

Courses from soup to nuts are offered in *The Manual for Plymouth Owners*, by C. E. Packer and available from Popular Mechanics Press, 200 E. Ontario St., Chicago 11, Ill. for \$3.50. Driving instructions and complete care of the auto are described in simple terms with the aid of diagrams. This would be a boon to Plymouth owners.

The Glasser's Manual, published by Taylor & Art, Inc., Plastics, 1710 E. 12th St., Oakland 6, Calif., for \$1, takes the bugaboo out of building and repairing with Fiberglass for the uninitiated. Customizing, repairing and restoring cars are explained—right down the line through boats and furniture as well.

Marquette Manufacturing Co., 307 E. Hennepin Ave., Minneapolis 14, Minn., has a free 40-page *Guide to Better Welding*. This is a convenient reference to how and which rod is to be used for a particular job.

Newhouse Automotive Industries has published and makes available for 25¢ a *Hi-Performance Equipment* catalog listing all sorts of do-it-yourself items for all makes of cars. Write 5803-5805 E. Beverly Blvd., Los Angeles 22, Calif.

Floyd Clymer has published another catalog-type book, this time on the Cord, written by Roger Huntington. *The Cord Front-Drive* covers this classic marque from the L-29 through the 810-812. Worthwhile for Cord owners or enthusiasts. Sells for \$3 from Floyd Clymer, 1268 So. Alvarado, Los Angeles.

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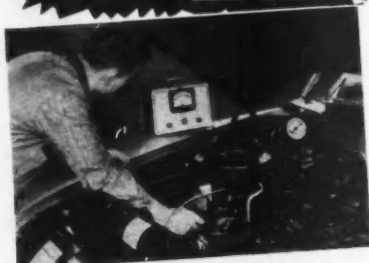
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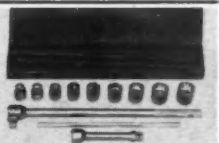
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THE

Rumor
MILL

"More low-priced sports cars will shortly be imported."

TRUE—The importer of the Maico 500 tells us he expects an under-\$2000 two-seater of around 900cc displacement. Car will likely be a two-stroke job and is said to be a good performer with lots of eye appeal as well.

"American Motors will introduce a four-door, full four-passenger Metropolitan station wagon."

FALSE—There is nothing to this report which, somehow, has already received considerable attention in the automotive press. The Metropolitan will continue as is for some time. Giving rise to this unfounded rumor is the AMC intention to introduce a 100-inch wheelbase Rambler to supplement the regular series.

"American Motors will discontinue production of their larger cars."

FALSE—Again we have a report as persistent as it is false. The Hudson and Nash have undergone drastic changes (for the better) for '58; they'll still be with us although there may quite possibly be some change in their designation.

"Standard-Triumph Motors, one of the big British manufacturers, is about to be purchased by the Chrysler Corp."

FALSE—But reliable reports indicate that a Canadian tractor and farm implement firm is negotiating for the purchase of Standard, subject to the approval of the latter's board and stockholders.

"The two-year cycle of model change is reason Chevrolet is not switching to unit or integral body-frame construction."

FALSE—Necessity to completely retool, in fact to virtually rebuild the entire assembly plant—a terrifically costly proposition—plus the fact that many engineers believe unitized structures are not the only answer to building them low are more logical reasons.

"One of the big three small cars will discontinue six-cylinder engines in '58."

FALSE—For there are still some people who insist on economy, as proven by the

unexpected response to the Studebaker Scotsman. Another factor that will keep the six-cylinder mill around for a while is that fleet buyers consider operating economy to be a *must*, an indisputable advantage of the six.

"Ford may scuttle the two-passenger Thunderbird in '58."

POSSIBLE—But this does not mean the T-Bird will not be here for another round. Latest reports have it that the '58 Bird will not only be a very nifty four-seater (as reported last issue) but that it will be unitized. T-Bird popularity, while slackened a bit from what it was in the '55-'56 period, is still a potent force in Ford planning where the car is still considered a success for the simple reason that it is a success.

"Studebakers will be virtually all new."

FALSE—And our prediction as to S-P changes still stand. The new line will be changed by means of improvements, modernization, and die modifications. This firm, we are glad to say, is enjoying improved health.

"Lincoln's styling changes (for '58) will be minor."

FALSE—And we are surprised to see this in print elsewhere for it has long been common knowledge that the '58 model will feature integral construction. This factor alone means a complete re-engineering of the entire car. Therefore, it would not make sense to re-engineer a car without restyling. After two years with little change, the obvious need will be met. Furthermore, the existence of a new Lincoln *only* plant is well known; even big firms do not build *new* plants to make old products.

"Pontiac will go to unit body construction for '58."

FALSE—And again this sounds as repetitious as it is, but the rumor is still with us. This is absolutely untrue—not even a possibility as of now, and though you may see this rumor in print again, it can be completely discounted for what it is—mere rumor without ground.

The GREAT DEBATE

continued from page 9

few would be tempted to whistle at an average movie queen or TV starlet if she were eight months along. Likewise, should someone enlarge an Arnolt-Bristol or Maserati to fit a 120-inch to 125-inch wheelbase, allow for a passenger capacity capable of accommodating mother, father, a couple of kids, and the family hound, the result would be ludicrous. It would obviously be not nearly so sleek and swift-appearing as it was. It is the passenger capacity that does it. Form follows function.

In actuality, it has long been admitted freely among stylists both here and abroad that scaling a typical American car to sports car proportions results in a pleasing design—one of better than average beauty. Although it must be conceded that in performance our endeavors in the sports type car field do not always compare too favorably with their foreign competitors, esthetically speaking they are second to none. The two most successful, the T-Bird and Corvette, each an entirely different concept of design, are both basically well executed, beautiful styles, and both are nothing more than smaller versions of larger brothers.

The sports car design with this article is one that will never be built, but yet it is a design that exemplifies the styling ideas currently popular among this country's various manufacturers. While it is a car that is not meant to be typical of any one company's products, it does demonstrate clearly that it is not the stylists who are at fault, but rather the proportions necessitated by the job our cars are required to do. It is a car that is indisputably a sports car in every sense of the word, a car highly suitable for competition and street use.

If the sports car enthusiasts would take another look at domestic design and give it an honest appraisal, perhaps they would admit that it is basically good, sound styling. If they would do this, perhaps then they would acknowledge that the stylists of the Motor City do accomplish a highly commendable job within the limitations imposed upon them by the buying public. And they might even agree with the majority that Detroit design is good.



"Still keeping a jump ahead of Detroit?"



World-famous racing driver Stirling Moss and his Sunbeam Rapier

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They just naturally go together. For you, it's a smart move to follow the lead of the world's top sporting drivers who choose Sunbeam Rapiers for their personal transportation. For here is striking proof that only the stunning, spirited Sunbeam, among all family sedans, comes so close to matching the exciting performance that attracts men like this to racing cars.

There is much to admire in a Sunbeam: its surging acceleration from 0 to 60 m.p.h. in under 20 seconds; its perfect spacing of six gear ratios; its hair-trigger controls that respond to every instant command; its incredibly durable ohv power plant with 8 to 1 compression ratio; its sturdier, safer unitary chassis; the relaxed comfort it offers for hundreds of miles at a stretch; its surprisingly low cost. Parts and service everywhere. If you drive for fun, road-test a Sunbeam Rapier, at your Hillman/Sunbeam dealer's.

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economical?

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handle?

Is it Ford's
biggest gamble?

performer?

How does it ride?

HOW



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IN 1956 THE FORD MOTOR COMPANY introduced the Continental Mark II into a price class that had no domestic competitors. Established as a separate division, Continental built 3000 units and suspended production about mid-1957 for the second time. Most of the Mark II's were sold by the time Cadillac began producing their competing Eldorado Brougham.

Some say that the Continental styling was too "old fashioned"—yet a number of its aristocratic styling features were lifted and applied to the Thunderbird so that, even today, some people mistake one for the other at a distance. There is one difference: the Thunderbird enjoys an extremely healthy sales position.

Now Ford's third new postwar car has been announced—their most ambitious venture to date. Fanfare has preceded this new car and some are now saying that they're in over their heads; that the *Edsel* hasn't a chance against the target area occupied by the Dodge, De Soto, Pontiac, Oldsmobile and some Buicks. Other closer observers are of the opinion that FoMoCo is even competing against their own Ford and Mercury cars.

The economics of the matter are that the announced \$250 million has to be paid off, according to Edsel officials, in three years if the project is to be in the black. This means that in a price range making up about 60 per cent of the total new car market, Edsel must sell in the vicinity of 200-230,000 units per year to reach the break-even point. It seems quite problematical whether a new car can enter such a stiffly competing area of the overall market and take that large a chunk out of it.

A conquest car—one aimed at garnering other manufacturers' customers—is the way Edsel will be pushed. The monumental task of setting up a new sales organization appears staggering to the imagination of those on the outside. If Edsel can accomplish

seeing out of the windshield corners in heavy rain or snow will be experienced. Distortion in the windshield glass was a shade above average—this problem is yet to be licked.

The instrument panel in a fully equipped Edsel is both beautiful and quite efficient. The speedometer, a stylized horizontally rolling dome-like object with large white figures on a dark background, is located where it is immediately readable. Two optional dials good for the gimmick fanciers are the tachometer and fresh air control. The latter is a single knob with which you can dial the amount of exterior fresh air or heat desired. When equipped with air-conditioning the single dial controls the amount of refrigeration desired in one single motion—a true innovation.

As so often is the case on modern cars, there is a goodly assortment of warning lights: to supplement the standard fuel level gauge there is an optional fuel level warning light, the oil pressure light, one for generator, one for the hand brake, one to warn of an open door (a practical idea), an oil level warning light, a green cold engine tell-tale, and finally, a red light to warn of an overheated engine.

The steering wheel, with its two-thirds horn ring, has a good feel and is positioned well. The big Edsel innovation is the compact circular group of transmission control buttons in the wheel's hub. You need not take your eyes off the road for an instant, you need not grope to find the right button when jockeying for a parking place . . . your hand soon learns the correct positions for PARK, REVERSE, NEUTRAL, DRIVE, and LOW. Called "Teletouch," the hub-mounted selector remedies a situation that other button systems have failed to recognize—that most folks are *not* left handed, and that there are some times (as when inadvertently stalled for a moment) when one's hands must fly from buttons

GOOD IS THE Edsel?

by Joe H. Wherry Detroit Editor

the task set for it, the car had better be good! Just how good can best be answered by analyzing those features and points that you haven't seen (or won't see) in the showroom.

This new car is longer than the longest '57 Ford and Mercury models. Height is another matter, for although the wheels are the new 14-inchers, the Edsel tops its '57 relatives by a fraction of an inch. Headroom front and rear in the sedans is also fractionally less than in comparable '57 Fords and Mercurys. Hip-room, however, is greater than in the '57 Ford, approximately the same as in the Mercury. Your garage may seem a bit narrower; the Edsel is about two to five inches wider than both '57 Ford and Big-M.

Interiors reflect FoMoCo's concern for safety with the installation of dished steering wheels, padded dashes, and safety belts—optional in most cases. Though not six feet tall by nearly two inches, the writer found the Ranger and Pacer test cars put at our disposal to be most comfortable in every respect. The front seats move easily in both manually and power operated options. In the former case the seat tracks slant upwards to raise the seat in its forward position; power options for seats include both two- and three-way options.

The driving position is excellent, with an over-hood view on par with the best in '57. Only when cresting the steep test hills did the center-high nose protrude; the redeeming factor when in such a circumstance is that the gouged or depressed outer part of each side of the hood enhances forward vision. The vacuum-operated wipers (on each test car) move in opposition and stop conventionally in the center; it appears that the usual difficulty

on the left to the wheel, to the ignition switch key, back to buttons and wheel in order to get under way. For those who still prefer the "ancient" lever-operated automatic transmission, he too can be satisfied, for the Ranger, Pacer, and all wagons can be had with the familiar lever. The economy minded can have the three-speed synchromesh stick shift with or without optional overdrive, but only in the wagons and smaller Ranger and Pacer series. In the bigger and longer Corsair and Citation models the automatic torque converter with planetary gearset giving three overall ratios is standard.

The engines are new, and though there are points of resemblance to last year's big FoMoCo units, there is no similarity in the specifications in either case, at least dimension-wise. Each engine has integral block and crankcase one-piece design cast of Ford's own iron alloy. There are five main bearings in each with end thrust being taken by number 3 main. Both mills use a molded-type crank made of *Pearlitic* alloy iron—little final machining is required and these cranks are said to be extremely durable. Each block carries its oil filter at the left front and the lubrication system is of the full pressure type with the exception of the piston pins and timing gear or chain which are by oil mist and pressure spray, respectively. Servicing the filter will be easier on the bigger "E-475" engine for one need not circumvent or fumble around the fuel pump mounted above the front of the block. The smaller "E-400" plant has its fuel pump slightly in front and above the oil filter. Both engines use a new distributor with both vacuum and centrifugal spark advance, single four-barrel downdraft carburetors, more easily reached spark plugs, and have

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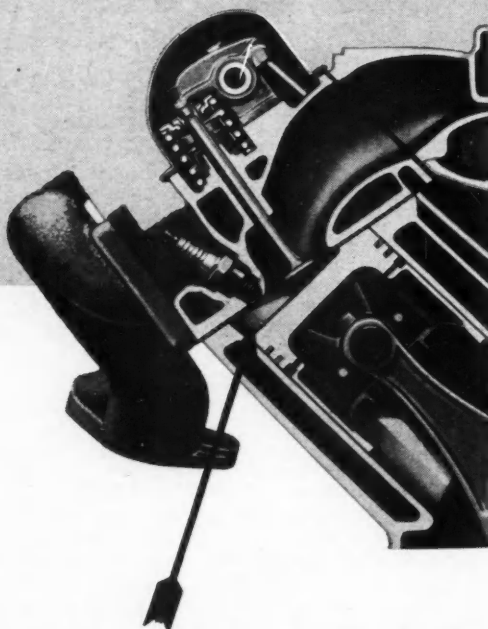
How good is the Edsel's engine?



W. E. BURNETT (r.), Executive Engineer, Engineering Operations, Edsel Div. discusses 410 cu. in. engine with author Wherry.

ENGINE SPECIFICATIONS

	Ranger-Pacer-Wagons	Corsair-Citation
Type	90° V8	90° V8
Displacement	361 cu. in.	410 cu. in.
Horsepower	303	345
Torque	400 ft.-lbs.	475 ft.-lbs.
Bore and Stroke	4.05 x 3.50	4.20 x 3.70
Compression Ratio	10.5:1	10.5:1
Combustion Chambers	Angle wedge	Cylindrical wedge
Crankshaft	Precision molded of Pearlitic alloy iron, with 5 main bearings, and end thrust taken by No. 3	Same
Camshaft	Precision molded of alloy iron, with chain drive and 5 bearings	Same
Fuel Pump	Mechanical	Mechanical
Carburetor	Downdraft 4-venturi	Downdraft 4-venturi
Air Cleaner	Dry replaceable element	Dry replacement element
Fuel Capacity	20 gallons	20 gallons
Electrical System	12-volt	12-volt
Distributor Drive	Vertical from camshaft front	Vertical from camshaft front
Spark advance	Vacuum and centrifugal	Vacuum and centrifugal
Spark plugs	18 mm	18 mm



BIGGER E-475 engine has fully-polished combustion chamber (arrow) in block, top of which is machined at 100-degrees instead of 90 degrees. Smoother surfaces are thereby provided by machining only the flat surface of the head.



disposable-dry-pack type air cleaners of generous size. Each engine has hydraulic tappets only, intake valves exceeding two inches diameter, exhaust valves of from 1.55 to 1.78 inches diameter. Three stage cooling systems are used (similar to the '57 Mercury), and neither engine specifies the fan which free-wheels at higher speeds.

An unusual but sensible engine innovation is evidenced on the 410-cubic-inch engine, which has the new cylindrical wedge combustion chamber arrived at by the heads sitting on the respective cylinder banks at less than a right-angle—a feature we expect to set a trend.

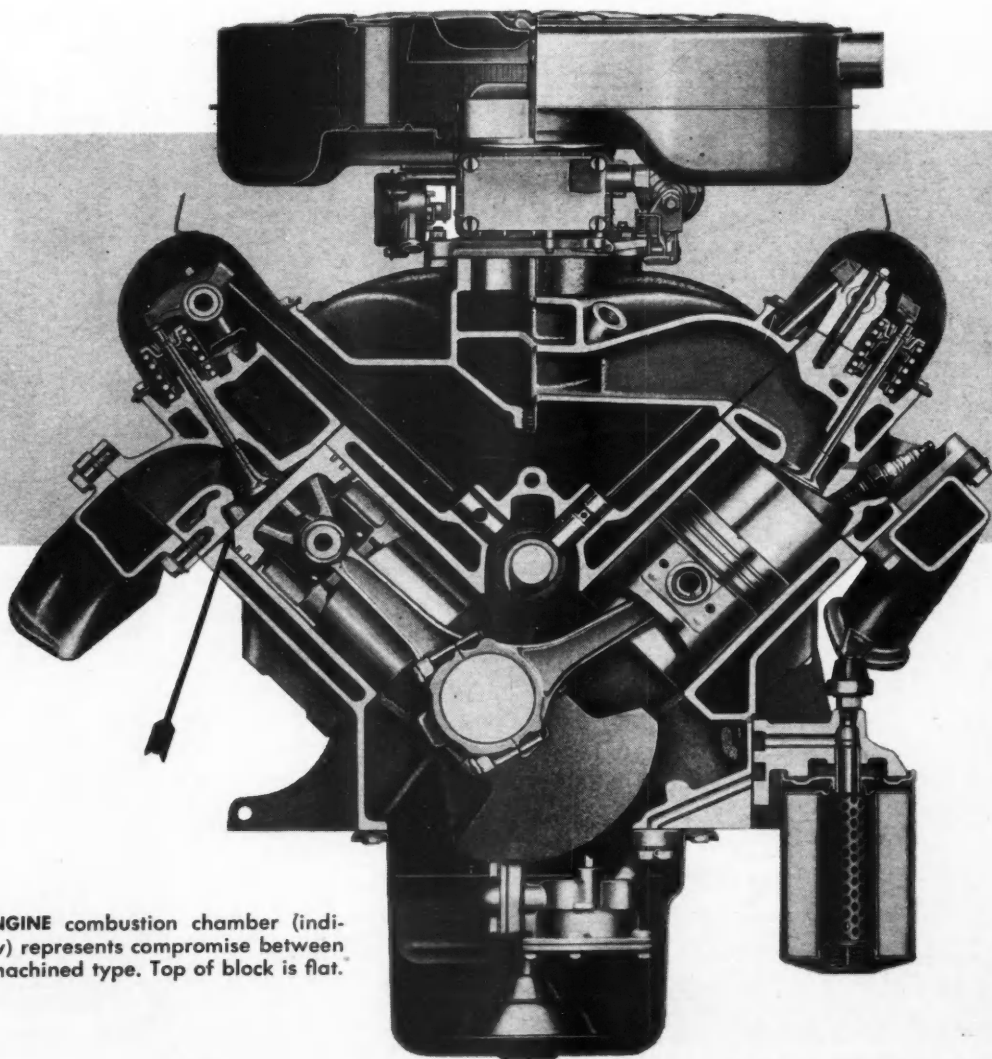
When we tried out the performance of the Edsel, we found that we could drop from DRIVE to LOW at speeds under 50 mph indicated. You get a LOW gear start when flooring the throttle and this was sufficient to take the 303-horsepower, test Ranger hardtop sedan to a calibrated 60 mph in 10.2 seconds. In the more useful traffic speed range this "small" Edsel (the slightly higher priced but identically sized Pacer would perform the

same) scats from a dead start to 30 mph in 3.7 and to 45 in just 6.6 seconds. On the straightaway the Ranger, locked in DRIVE range, got from 50 to 80 mph in a healthy 11.3 seconds. Upshift from low to second gear occurs, under full throttle, at about 45 mph and to third gear at about 62 mph.

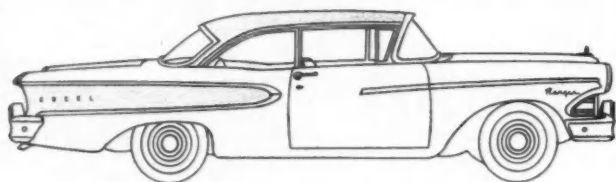
The big-engined Corsair test car, which like the Ranger checked was a pre-production job, has a hefty 410 cubic inches which churns out a rated 345 bhp and 475 lbs. ft. torque. Longer in wheelbase than the Ranger/Pacer models by six inches and longer overall by 5.7 inches, this stylish brute digs 30 and 45 mph in a hasty 3.4 and 6.3 seconds, respectively. To 60 mph the extra torque, which feels as if the maximum boost is fairly constant in the acceleration ranges, took only 9.7 seconds. A performer in the true tradition, even if it won't show up on any factory racing teams, the *Corsair* hit 80 mph from a cruising 50 in 10.9 seconds.

Because pre-production test models are usually full of lead

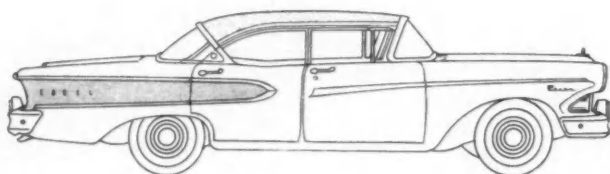
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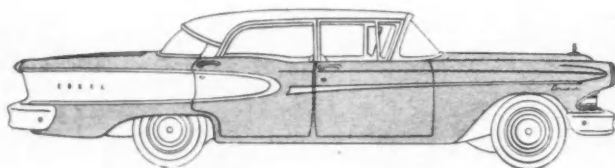
E-400 EDESEL ENGINE combustion chamber (indicated by arrow) represents compromise between casting, fully-machined type. Top of block is flat.



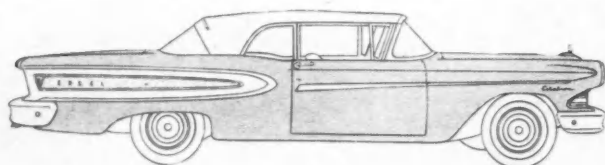
Ranger. 118-in. wheelbase, 2D hardtop.



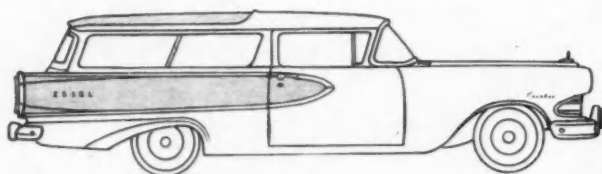
Pacer. 118-in. wheelbase, 4D hardtop.



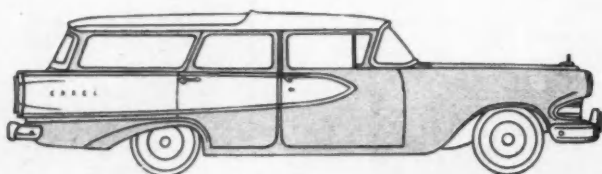
Corsair. 124-in. wheelbase, 4D hardtop.



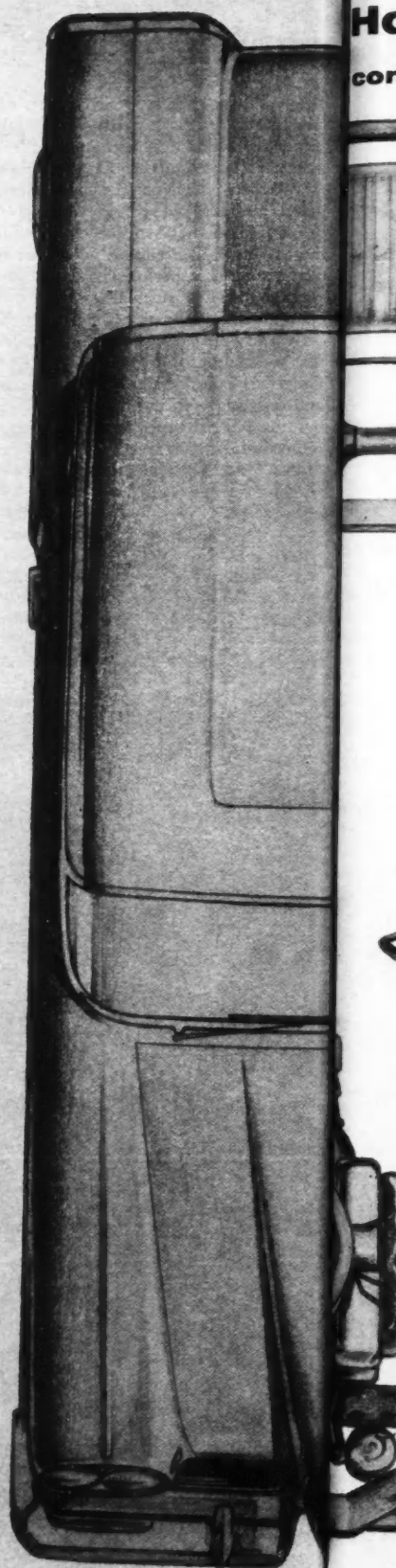
Citation. 124-in. wheelbase convertible.



Roundup. 116-in. wheelbase, 2D, 6-pass. wagon.



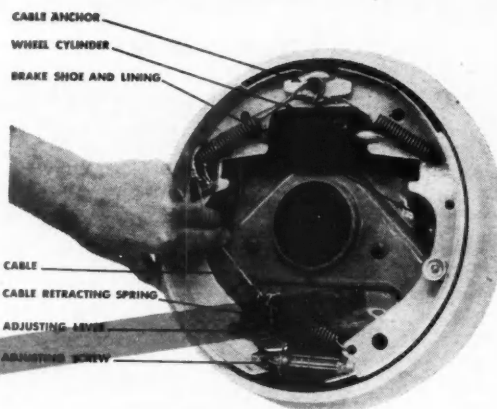
Villager. 116-in. wheelbase, 4D, 6-pass. wagon.



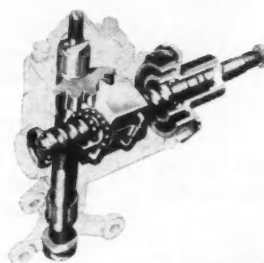
How good is the Edsel's suspension?

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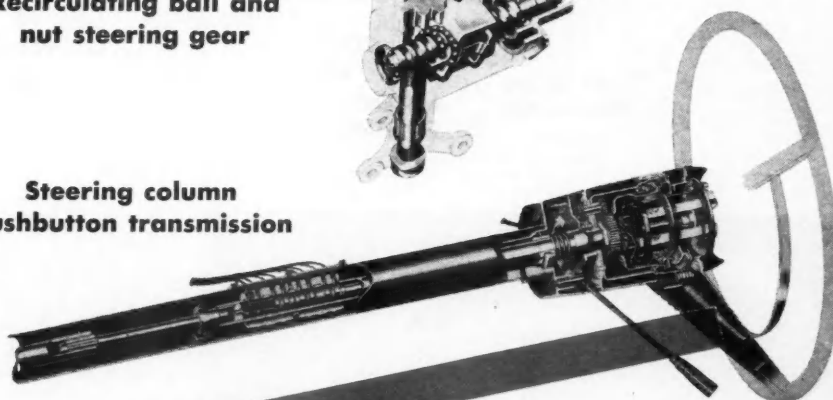
Brake with automatic adjusting



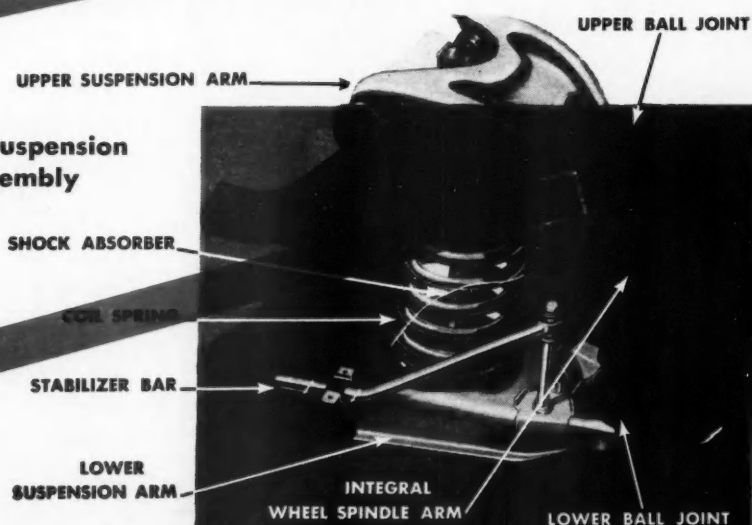
Recirculating ball and nut steering gear



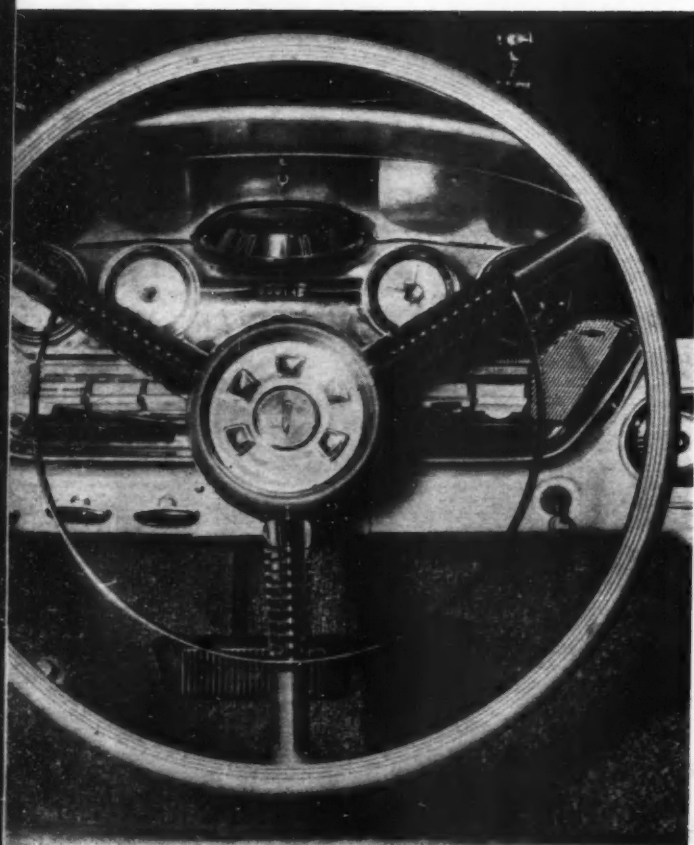
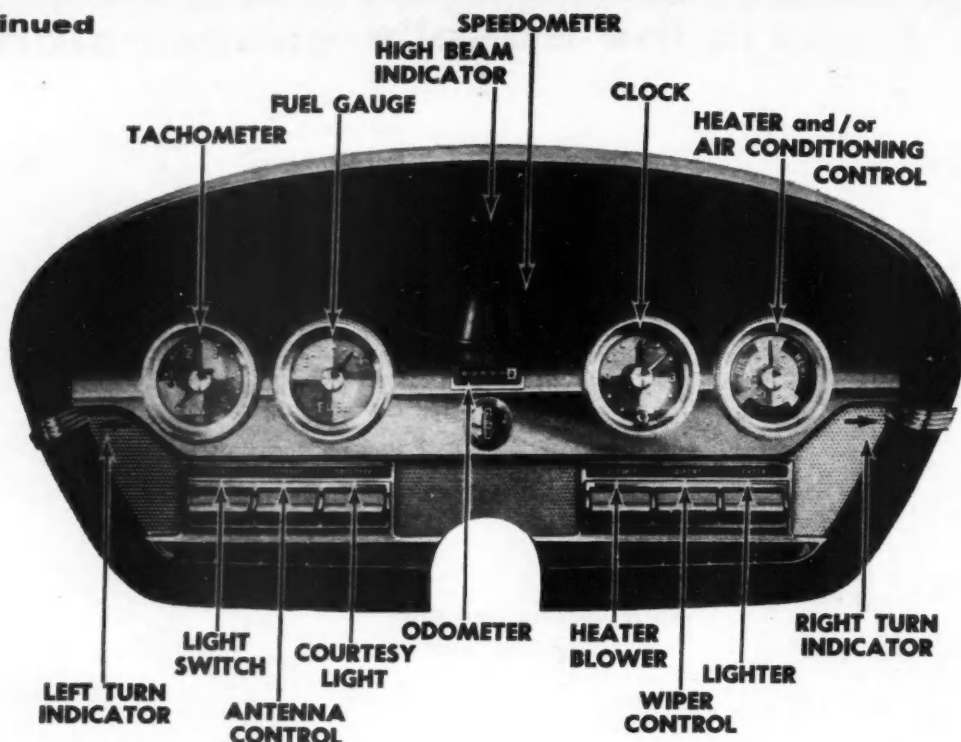
Steering column pushbutton transmission



Front suspension assembly



continued



in unseen places, it might be assumed that a well-tuned production stock Edsel, of either size, would better these times by a fraction or two of a second. At any rate the performance was as satisfying as the handling. As to the latter, both series felt very much like the Ford Fairlanes of '57 with perhaps a bit smoother ride (especially in the back seat). They also have about the same amount of heeling over on a hard and quick corner. Each had power steering (an overall ratio of 23 to 1). Power steering wheels take $4\frac{1}{4}$ turns lock to lock, whereas non-assisted steering has $5\frac{1}{4}$ turns. Power steering is standard on the Corsair and Citation, optional on the smaller two series and all wagons. Both types use recirculating ball and nut gear.

On a 27 per cent test hill we stopped the cars, set the foot-operated parking brake, killed the engines, and then started up the hard way. The parking brake releases by means of a toggle beneath the dash on the left. A word of warning—you could accidentally pull the very close and identical toggle that releases the front-hinged hood, although little harm would be done when stopped since there are safety catches on each side. It would seem that less initial confusion would result if the hood release changed places with the optional one-shot chassis Multiluber; the latter is on the right adjacent to the ignition-starter switch keyway.

In loose gravel we tried rocking as one would need to do in snow. A built-in inhibitor switch prevents the automatic box from engaging reverse at more than five mph—but you can still play the "R" and "L" buttons very neatly with two fingers of your most educated hand, be it left or right. Swiftly traversing the Belgian blocks and washboard roads of the test area showed the Edsel to be a roadworthy car. Air suspension and a limited slip rear axle are scheduled for introduction a bit later on. For the present the front coil springs with telescoping shocks inside are mounted quite conventionally between upper and lower control arms. The latter are angled 20 degrees toward the rear. An integral spindle (in one piece with top and bottom ball joint attaching brackets) is used, which is said to impart greater solidity and frontal rigidity.

Rear suspension, too, is familiar—semi-elliptical leaf springs

How good is the Edsel's performance?

are used with the front ends held by compression type shackles with rubber sound-deadening blocks at the front ends. On the 116- and 118-inch wheelbase chassis the front ends of the longitudinal rear springs are mounted outboard of the frame side rails at the front. Inboard front spring mounting is used on the big 124-inch chassis. The telescopic rear shock absorbers are steeply angled inward, at the top, where they attach to the frame crossmember above and forward of the rear axle. This crossmember is tubular on the two short chassis. The 124-inch chassis uses a formed rectangular cross-sectioned member across the frame in the rear. Convertible frames have an additional I-beam, box type "X" member amidship. In each model size the chassis are of full width and narrow forward of the kickup over the rear axle. Further differences are few of great import, but the locations, relatively, of the standard single exhaust systems (duals are optional) are down the left side of the chassis on the 116- and 118-inch frames and on the right side in the big job.

Definitely a cut apart from the majority of cars, it is extremely doubtful whether there will be a style remotely like the Edsel, at least in most components, within the next 12 months. However, lest we be accused of unduly "raving" about it, let us say this: Edsel has the several unique approaches mentioned above—but there were untold opportunities for more. To some all the subtly increased fanfare over the past two years may seem to have been unwarranted—to others who can appreciate a fresh approach to styling and desire distinction unobtainable in Ford, Chevrolet, or Plymouth, the Edsel may well be the answer. The Edsel performs fine, rides well, and handles good. Our road test, later, will tell more.

Ranger
Pacer
Corsair
Citation
Wagons

BODY SERIES

2D sedan, 2D hardtop, 4D sedan, 4D hardtop
2D hardtop, 4D sedan, 4D hardtop, convertible
2D hardtop, 4D hardtop
2D hardtop, 4D hardtop, convertible
2D 6-passenger, 4D 6-passenger (2 models)
4D 9-passenger (2 models)

DIMENSIONS

Series	Wheelbase	Length	Height	Width
Ranger	118	213.1	56.4	78.8
Pacer	118	213.1	56.4	78.8
Corsair	124	218.8	56.8	79.8
Citation	124	218.8	56.8	79.8
Wagons	116	205.4	58.8	77.1

REAR AXLE

Type	Ranger-Pacer Semi-floating, hypoid final drive	Corsair-Citation Same	Wagons Same
Ratio:			
Standard Transmission	3.56	None	3.70
(Optional)	3.70	None	3.56
Overdrive	3.70	None	3.70
(Optional)	3.56	None	3.56
Automatic Transmission	2.91	2.91	3.22
(Optional)	3.22	None	2.91
Brake type	Bendix duo-servo with automatic brake adjuster		
Brake Lining Area (Sq. In.)	191.5	212.8	191.5



PERFORMANCE

SPEED IN MPH	RANGER 4D HARDTOP (361 cu. in. engine, automatic transmission)	CORSAIR 4D HARDTOP (410 cu. in. engine, automatic transmission)
0-30	3.7 secs.	3.4 secs.
0-45	6.6	6.3
0-60	10.2	9.7
50-80 (DRIVE)	11.3	10.9



MUDHOLES, jungle and desert are par-for-the-course obstacles.

a road race for

ASK ANY AUTO RACING FAN what the toughest race in the world is and the answer you get will probably be: "Mille Miglia," "Indianapolis," or "Le Mans." They may *all* be wrong. There is a race little known outside the country in which it is run, that is far tougher and more consuming than any of the classics, a race where to compete—not to win but to place fairly—one has to be a crack mechanic, a skilled driver, a hero and a lucky man.

The "Gran Premio de la Republica Argentina" is a road race 5000 miles long (!) held every year in that country over roads paved only in the first and last stretches that start from and return to Buenos Aires, for a total of perhaps a thousand miles. The rest is the road to nowhere, the track that crosses the "Pampa," winds through 10,000-foot Andean passes, with the dust trailing for miles after a car and blinding the next, or with mud gripping the wheels.

The rules ask for cars of standard production with a rated power of no more than 115 hp. It can be extensively modified both in the engine to increase the power, and in the frame and bodywork to suit the special needs that arise. In the end this means that only Fords and Chevrolets built around '37 to '40 are used, because of some inherent advantages such as the solid front axles and robust construction of frame and body, and the availability of

spares even in the remotest parts of the country. A driver and a mechanic make up the crew.

The feats of the drivers of the "Gran Premio" are unbelievable—to put it mildly. Not to speak of the average of 70 mph for the whole 5000 miles or the top speed of over 100 mph with cars hardly meant for that speed on good ground, there remains the fact that one year the drivers competing in a "Gran Premio" were confronted with a desert that was flooded by the rain, so they took off the tires and lifted every car onto the tracks of a railroad miles away, finished the day's run bumper-to-bumper on the rails.

by Gianni Rogliatti

Suppose that one has the guts and the money to prepare a car and establish the refueling and helping stations along the route, as well as the skill to drive and not be afraid when the car hits a bump and literally flies 20 yards six feet high. He must still face the fact that he is up against the Galvez brothers, the greatest specialists in this field, and the odds are so heavily in their favor that the two brothers have won between them practically every race in the past eight years. (There are a number of shorter races of this type during the rest of the year.)

A "Gran Premio" begins at least two

months before the starting night, with the purchase of a suitable coupe in good condition, that is immediately dismantled to the last screws. The frame is reinforced with plates welded at the critical points, springs and shock absorbers are exchanged for stiffer units, and a new, hotter engine is installed, together with a new gearbox and differential. The engine gets "the works" just like the American hot rod, with some well-known brand of camshaft, manifold-ing and multiple carburetors. The car is fitted with a bigger radiator, simplified and exposed wiring, a 60-gallon fuel tank, and connections to use the standard fuel tank as a water tank with a pump to transfer cool water to the engine when necessary.

The body is stripped of all unnecessary luxury. The hood and trunk lid are made anew from aluminum both to save weight and provide an easier and quicker opening. Put in individual seats and safety belts, door bolts and steel tubing to reinforce the roof, cut the fenders to a mere strip . . . and you're ready to go.

Well, not really ready. The car must be loaded with 60 gallons of fuel, 10 of water, five of oil, four spare wheels, spare gears, clutch disc, connecting rods, pistons, rings, spark plugs, tools, and sometimes even a spare crankshaft. As long as you keep the original block—which is sealed—every other part may be changed during the race, and chances are they will be.

This ruling that the original engine

block must be kept for the entire race has led to some interesting developments. In his struggle for more power to keep abreast of his brother, Oscar Galvez once rebored his Ford too thin, so that in the first stretch the block cracked due to the excessive compression, but he still managed to finish. During the eight hours allowed to check the cars, he dismantled the engine, sewed the crack with interlocking copper bolts (ask any mechanic what kind of work that is!), smoothed the crack with a portable grinder, and rebuilt the engine with a lower compression ratio, managing to place third ten days and 4000 miles later when the race ended.

Starting time is a fashionable affair at midnight in front of the Argentine Automobile Club, in the most distinguished quarter of Buenos Aires. There is a cheering crowd that salutes as each pair of braves leave at 30-second intervals. There are the photographers and the movie and TV men, authorities, ladies, everybody. But for the participants the fun ends there: the

first stretch is usually a shakedown of a thousand miles or more, designed to eliminate quickly the "soft" ones.

After 12 or 14 hours of beating, only half of the 80 or so cars are left. Anything can happen and does, from a broken gearbox repaired in 30 minutes to a forgotten ditch that means disaster if entered too fast. After a day's "rest" spent repairing what needs to be—and usually that is plenty—the race goes on, down into cool Patagonia, then north to the tropical jungle and desert.

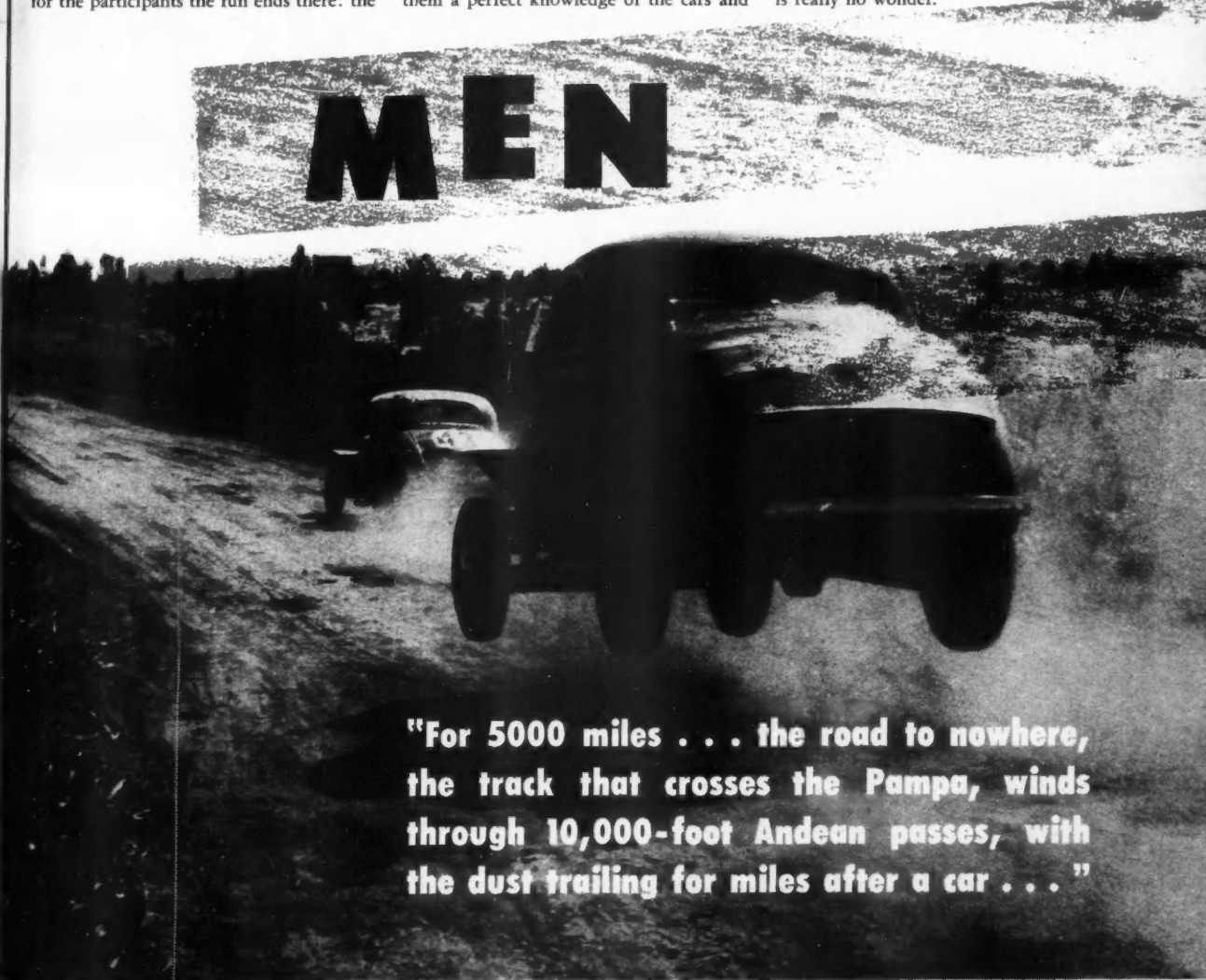
When, in the last stretch, the cars hit the concrete again, the race is usually defined: the leader has a total time (obtained by summing up the times of the stretches) of at least an hour less than the second. He merely travels at touring speed, hoping his car will hold up till the end.

What makes the Galvez brothers so good at this game where you bet \$6000 and your life to win perhaps \$3000? Twenty years of racing practice have given them a perfect knowledge of the cars and

most of the roads; they have everything planned and prepared and have even the psychological advantage of being feared. In the last "Gran Premio" of November 1956, just before the starting time for the fourth stretch it began to rain, so everybody put on mud tires. Then they noticed that the Galvez brothers had no mud tires but very smooth tires on their cars. Everybody frantically changed tires again, so strong is the idea that the Galvezes know every trick. Indeed they did—for some miles after the start the wizard brothers changed tires again and were riding high and fast while the others were stuck in the mud.

Of course there are other good drivers: Petrini, and Caravaglia, and Ciani, and Peduzzi to name a few, and above all Fangio, the four-time world champion, the great rival of the Galvezes until he quit to race in Europe. If anybody still wonders at Fangio's skill he need not. Coming from Argentina and having successfully driven in the "Gran Premio," it is really no wonder.

MEN



"For 5000 miles . . . the road to nowhere, the track that crosses the Pampa, winds through 10,000-foot Andean passes, with the dust trailing for miles after a car . . ."

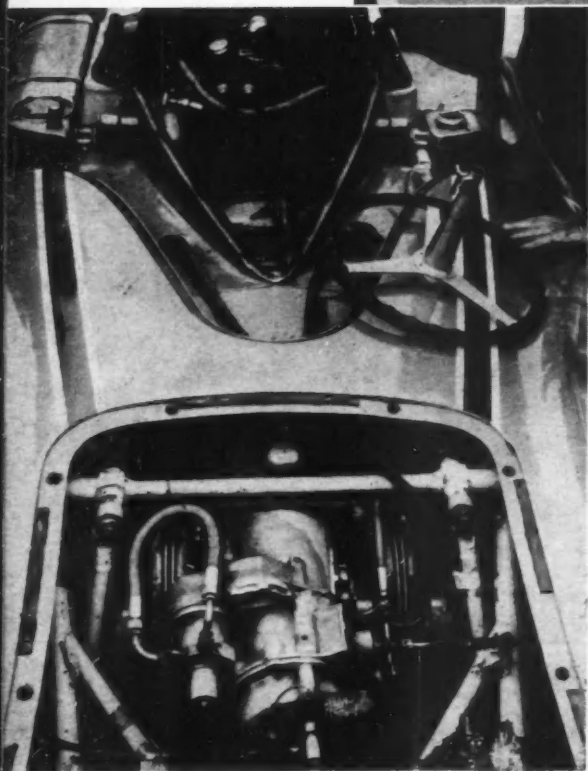
AUTHOR-DRIVER
Gordon Wilkins is
checked out by
Renault's racing
competition manager,
Francois Landon,
before test-driving
the "Shooting Star."

"I drove a

RECENTLY RENAULT took their gas turbine car—the *Shooting Star*—down to Monthéry and let a number of top ranking race drivers get a preliminary impression of what gas turbine racing cars of the future may be like. All were delighted with its performance. Fangio effused, "This would be a fine car for the speed circuit at Monza." Both he and Behra were immensely impressed with the acceleration at high speeds, but found the sensation of rushing along at undiminished speed when they shut the throttle mildly disconcerting. Trintignant, Musso and Manzoni also drove the car. Harry Schell tried to get into it, but couldn't find room for his long legs in the cockpit.

I was also fortunate in putting in a few laps. The cockpit, though small, is comfortable and well protected, and there is excellent forward vision over the low shallow snout, between the rounded wheel fairings. The most important instruments are on the top of the panel: rev counter for the gas generator, speedometer, and thermometer showing gas inlet temperature to the first turbine. With the engine idling, the thermometer showed the normal 400°C. Shouting to make himself heard above the shrill whistle of the powerplant, Francois Landon, Renault competition manager, showed me the fuel cut-off control to use in case it rose over 550°C. I was now free to go. There are only two pedals, set opposite to normal practice—the accelerator for the left foot and brake for the right. Steady pressure produced a rising whine like a Viscount aircraft preparing for take-off. When I released the handbrake the car moved forward smoothly as though drawn on an invisible cable, scattering spectators as the blast of hot air from the lateral exhaust ducts hit their legs.

FINAL DRIVE UNIT with disc brakes is behind detachable-wheel cockpit flanked by fuel tanks.





gas turbine car!!

Story and Photos by Gordon Wilkins Overseas Correspondent

Initial acceleration is not vivid but is by no means slow. M. Lory, famous racing car designer in charge of this project, told me that the car was in the Bonneville trim in which it had set up new speed records of over 192 mph for a turbine car. It was tuned for speed rather than acceleration. In any case, the fuel injection has to be carefully regulated to avoid burning the blades and to keep the compressor within its most favorable operating range. All of this deprives the driver of the direct feel which one normally has when acceleration is directly related to throttle movement.

In a short time the speedometer needle was soaring from 80 to 100 mph and the sensation of speed was increased by the low, forward driving position. It was simple: there was no clutch and there were no gears to shift, but there were other things to think about. The steering is direct and rather stiff, and requires a fair amount of concentration as the speed rises. Going from the straight onto the bank at about 100 mph, I expected to hold a course on the yellow line, but the nose would start to drop, so the natural reaction was to give it more gas. Because of the turbine time lag, this produced no immediate effect, so the line would adjust itself, and then the power would come rushing in and the trim would change again. Progress tended to be slightly erratic until one got the hang of the delayed action throttle response.

There is no doubt about it—when the power comes in things really happen, and the car goes from 100 to 120 mph with a tremendous rush. It is all the more awe-inspiring because it starts a second or two after one has signalled down to the engine room for it, and it continues for some time after the throttle pedal has been released. In these circumstances the first accelerations were a bit tentative. I knew the car could reach a speed far beyond what the Montlhéry track could accommodate, and I wondered how long I dared keep the left foot hard down. It was highly exhilarating, and there were always the Dunlop disc brakes, acting with no delay at all to keep things under control.

The high power-to-weight ratio of the Renault single-seater

cuts the time lag far below what I had found with turbine-engined road cars, so that it becomes simply a slipping clutch effect.

The delayed throttle response is of course one of the most intractable problems facing the turbine car designer, but as Fangio quickly saw, it would be less of a problem on a banked track like that at Monza, than on a road circuit.

The Renault single-seater is purely a research and experimental vehicle powered by a Turbomeca unit giving about 265 shaft horsepower at 35,000 compressor rpm. It has a single-stage axial-flow compressor turbine and a single stage free power turbine. The chassis is of steel tubes. Front suspension is by twin trailing links and torsion bars, and rear suspension is also independent, with single wishbones and torsion bars. The disc brakes are mounted inboard at front and rear, cutting unsprung weight. The power unit is started on gasoline and switched over to kerosene for normal running.

*and how soon
may you be
driving one?*

see next page

Who'll be first with a production GT car . . .

by Gordon Wilkins Overseas Correspondent

DESPITE VAGUE AND CAUTIOUS statements by leaders of the automotive industry, some engineers with whom I have talked believe that Britain could be the first country to market a gas turbine car—in the not-too-distant future. During the recent period of reduced output, research staffs in several factories were pressing on at full speed with turbine development. They refuse to be over-awed by the immense resources which the American industry can devote to gas turbine research. They argue that a large part of the American effort has to be devoted to finding ways of making very cheap turbines, since the American manufacturer expects to make his complete power unit for a few dollars. It is uneconomic to build a car in the U.S.A. unless it can be sold in quantities of tens of thousands. Unless the price is right, there is no point in contemplating production. In the European high performance car field, output of some famous models is reckoned only in hundreds. It should therefore be possible to make a commercial proposition of a turbine car with an engine costing several times as much

as the Americans can afford to pay. It would probably be a 120-mph sports coupe with seats for two and space for a fair amount of luggage. British engineers are therefore concentrating on making efficient turbines, leaving the problem of cheap mass production for later solution.

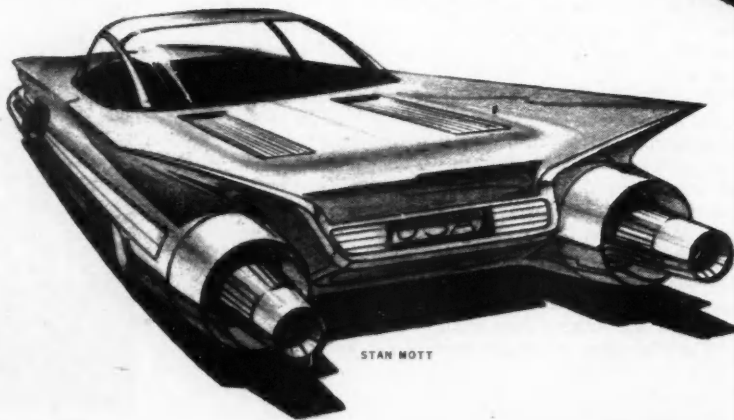
The Rover T-3, the blue plastic-bodied turbine coupe which was exhibited at the London Motor Show in 1956, has since been running with an improved power unit bettering the performances obtained in the fall of 1956. The original engine, with single-stage centrifugal compressor driven by a single-stage turbine, followed by a single-stage power turbine, developed 110 bhp at 52,000 compressor rpm, with a pressure ratio of 3.85 to 1. The car accelerated from 0 to 60 mph in 10.5 seconds, and 0 to 80 mph in 18 seconds. Fuel consumption was 11.9 mpg at 60 mph.

Better ducting has since raised the efficiency of the heat exchanger, and an improved compressor turbine, in Nimonic 100 instead of Nimonic 90, is able to tolerate a higher gas temperature. This has improved fuel consumption to about 14 mpg.

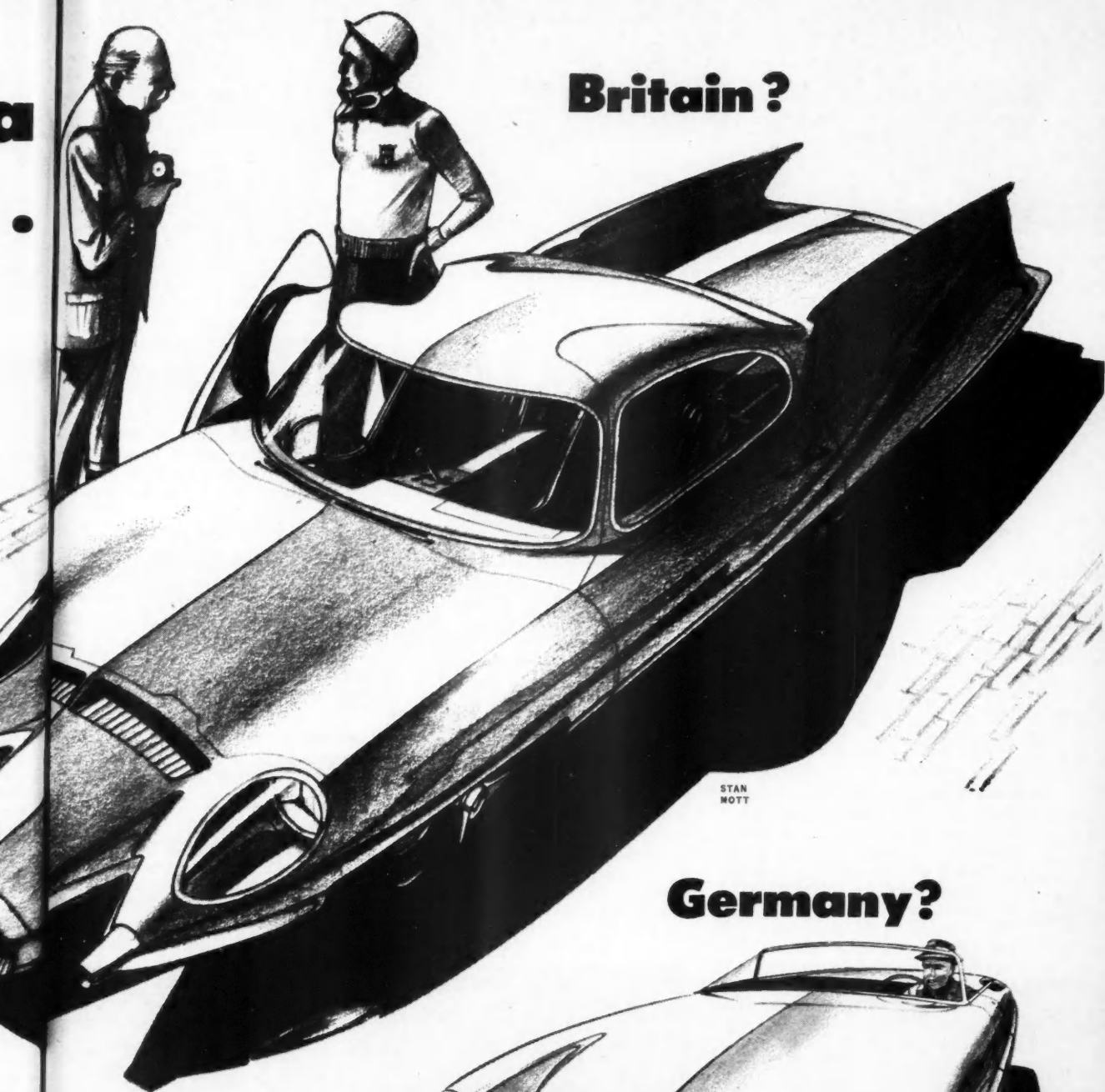
continued on page 64

U.S.A.?

All major U.S. firms are well advanced in GT development. Probably the first U.S. production GT car will (unlike British or German efforts) be a luxury type car, in the Eldorado-Brougham-Continental-300-C class. Cost for limited number would more than likely be quite high.

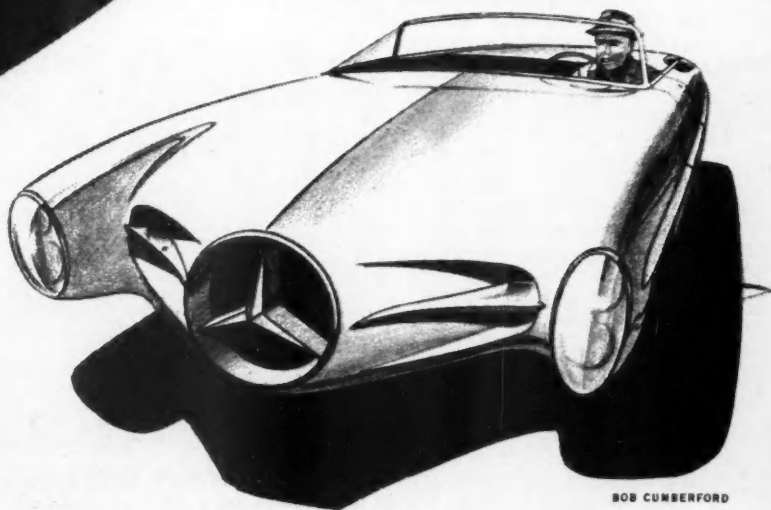


Britain?



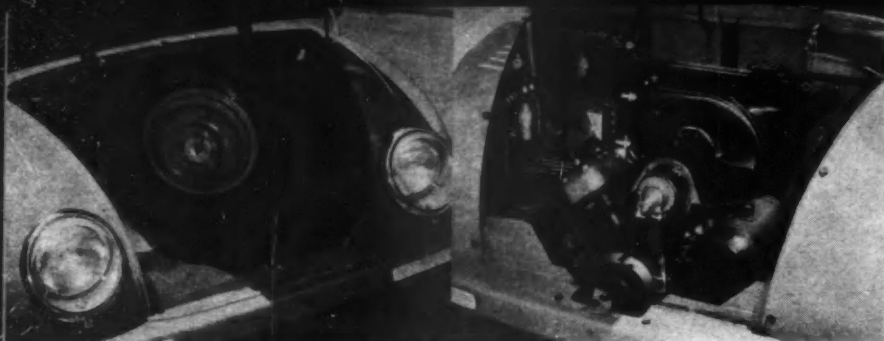
STAN
MOTT

Germany?



BOB CUMBERFORD

Daimler-Benz has long been rumored to be working on a GT car for production. Numerous patents have been taken by the firm, and many informed observers have conjectured that this project was the primary reason the company quit racing, so the technical staff could concentrate on it.



SMALL AMOUNTS of luggage share the up-front trunk with the spare wheel, fuel tank. Rear engine nestles compactly in easily accessible compartment.



Maico 500

*Story and Photos
by Joe H. Wherry*

drivescription

LATEST ARRIVAL in current influx of small cars is this "Maico 500" imported by Whizzer International, Inc. of Pontiac, Mich. Product of Maico Werke Pfaffingen of Germany, 213 of these diminutive four-seaters have been sold in the Michigan-Ohio area alone.

Simple and somewhat austere, the Maico does have some interesting features for its class. The body is aluminum, appears to be well built, and is mounted on a central tube chassis that incorporates two supporting cross-bearers. The front suspension is by individual swinging links and rubber torsion units. The 452cc two-cycle, two-cylinder engine is rear mounted, is water-cooled and incorporates a good heating system. Rear wheels are on swing half-axes with coil springs. Hydraulic shock absorbers and brakes complete the undercarriage picture in more or less conventional European small car practice.

Four average size adults are accommodated on well-sprung bench-type seats. The rather lively Scot-like plaid pattern of the plastic upholstery livens up the sparse interior and contrasts nicely with the economic simplicity of the unadorned exterior.

Only one model is offered, but the im-

porters state that the car will appear here in fairly large numbers. In an attempt to check out the car's speedometer against the accurate speedometer of another car, we saw the Maico get into trouble—and get out of it, quite admirably. We saw

the little car negotiate rough, dust covered paving where it reacted, at full bore, just as we expected—it spun, did an about-face, but kept all four wheels planted firmly with scarcely any tilting. This bad behavior was, in our opinion, due to an overenthusiastic dealer's driving rather than to the car, for further driving on our part indicated that the Maico is very stable and as roadworthy as other small imports.

Maico has been building motorcycles for three decades. Hence, the firm should know their two-cycle engines well. This engine seems to be well built, sounds good, is angled steeply to the left side, has dual coil ignition, a combination generator and starter, and a Bing carburetor. Oil, naturally, must be mixed with the gasoline.

The floor-mounted stick shift has synchromesh on top three gears. Starting is instantaneous; acceleration nominal; ride remarkably good. Principal drawback is poor ventilation—half of front windows slide open, rear ones are fixed. Any way you look at it, though, it's lots of fun to drive.

PERFORMANCE

Max. speed in gears, 1st 12 mph, 2nd 24 mph, 3rd 44 mph, top 56-60 mph.

SPECIFICATIONS

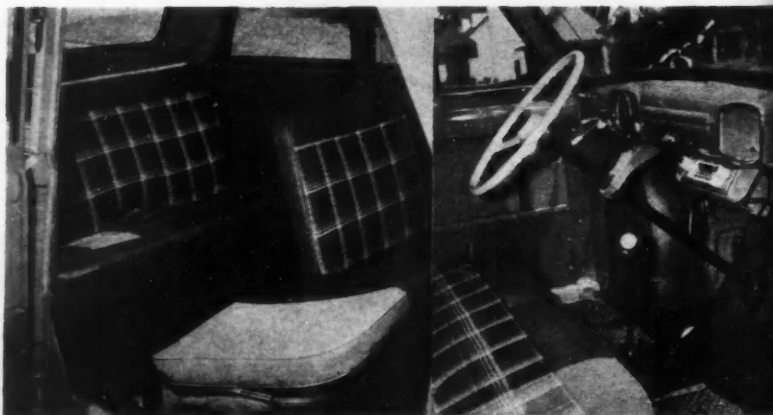
ENGINE: Two-cycle, two-cylinder in-line. Bore 2.60 in. Stroke 2.60 in. Stroke/bore ratio 1.0:1. Compression ratio 7.2:1. Displacement 27.67 cu. in. Advertised bhp 18 @ 4000 rpm. Bhp per cu. in. .65. Piston speed @ max. bhp 1733 ft. per min.

TRANSMISSION: 4 forward speeds, top 3 synchronized.

CHASSIS: Central-tube. Front suspension—individual swinging links, rubber torsion units. Rear—swing half axles, coils. 5.20 x 12 tires. 4-wheel hydraulic brakes. Rack and pinion steering gear, with 33-ft. turning circle. 2.5 turns lock-to-lock.

DIMENSIONS: Wheelbase 79.5 in., overall length 134.5 in., overall height 55.0 in., overall width 58.5 in., minimum clearance 6.0 in., front tread 47.0 in., rear tread 45.5 in., weight 1290 lbs., weight/bhp ratio 71.6:1.

PRICES (F.O.B. port of entry): Standard \$1295 or Deluxe \$1326 with heater, electric wipers and turn signals.



EACH OCCUPANT has 20 inches hip space; legroom aft compares with other small cars. Front seat adjusts, will take a six-footer. Upholstery is plastic.

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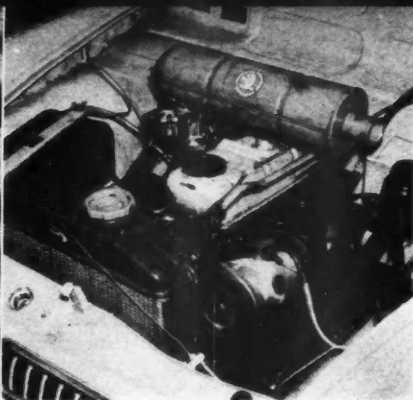
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← **FOUR-SPEED SHIFT** has long throw. Glovecase is fair size; visors are blue, transparent. Heater doors rattle. The 1089cc engine is like Fiat 1100's.

top-hinged cover) is a gang of six knobs for instrument lights, dome lamp, foglamp (optional), heater, left and right separate wipers. Radio is optional.

Excellent describes the handling and a glance at the specs will tell the reason. Fore-and-aft weight distribution was unknown, but it must be on the order of 53/47 front and rear because car behaves beautifully under very adverse conditions including wet and slippery pavement, chuckholes, gravel, and cornering that would be suicidal in most larger sedans. Dips must be taken at foolish speeds to cause bottoming.

Summed up briefly, the 440 model is surprisingly well built, should sell as well as harder-to-get tungsten from Red China. (P.S. Some GMC dealers are selling it near Detroit for \$1695.) It's pretty good.

Skoda 440



Story and Photos
by Joe H. Wherry

drivescription

FRONT TO REAR the latest Skoda is somewhat impressive on three counts: it's the first Iron Curtain car that has managed to entice dealers west of the Atlantic seaboard (the Model 1200 failed miserably about two years ago); the 440 has familiar lines, perhaps indicating secret admiration of the unfortunate Czechoslovak manufacturers for their former Western-oriented way of life; and finally, beneath the neat exterior it offers more sound engineering than the cars we have examined from Soviet Russia.

Plastic upholstery covers spindly springs, the durability of which we doubt. The car will seat four average-sized adults.

The Skoda checked had less than 200 miles showing. The gearbox was stiff but still allowed sprightly snap shifts. Seating position is good for driver, the instrument panel quite well laid out but confusing with four tell-tale lights: dark red for generator, green for oil pressure, blue for high headlight beams, orange for turn signal indicator—all set within the speedometer/odometer. The latter is a large dial straight forward and high above steering column which contains ringless horn button. Left dial is water temperature

gauge; right is fuel gauge for 7.5 gallons of regular grade gasoline.

Pushbutton lovers should be happy in the 440, for below the dash-centered radio compartment (with integral ashtray in



LUGGAGE CAPACITY is commendable but vertically-mounted spare at left would help (note fuel tank at right). Excellent front suspension is rare today.

PERFORMANCE

ACCELERATION: Max. speed in gears: 1st 19 mph, 2nd 36, 3rd 51, 4th (top) 69-71 mph. Start to 30 mph: 7.1 secs., to 45: 16.2, to 60: 34.3, 30-50 (in 4th) 16.1.

FUEL CONSUMPTION: 27-36 mpg.

SPECIFICATIONS

ENGINE: Four-cylinder ohv in-line. Bore 2.68. Stroke 2.95. Stroke/bore ratio 1.10:1. Compression ratio 7.0:1. Displacement 66.43 cu. in. Advertised bhp 40 @ 4200 rpm. Bhp per cu. in. .60. Piston speed @ max. bhp 2065 ft. per min. Max. torque 54 lbs.-ft. @ 2300 rpm.

TRANSMISSION: 4 forward speeds; top 3 synchronized. Overall ratios: 20.4, 11.8, 7.6, 4.8. Rear axle ratio 4.78:1.

CHASSIS: Backbone with two cross-members, front end forked to receive engine. Front suspension—trapezoidal with forked arms at top, transverse semi-elliptic leaf spring on bottom. Rear—transverse semi-elliptic leaf spring supporting swinging half axles; arm type hydraulic shocks in front, telescopic type rear. One shot lubrication. 5.50 x 15 tires. 4-wheel hydraulic brakes, 98 sq. in. effective lining area. Symmetrical worm/nut steering gear, with 33-ft. turning circle, 2.75 turns lock-to-lock. **DIMENSIONS:** Wheelbase 80.3 in., overall length 160.0, height 56.3, width 63.0, min. clearance 7.7, front tread 47.6, rear tread 49.2, curb weight 2138 lbs., weight/bhp ratio 53.5:1.

PRICE (F.O.B. port of entry East Coast): \$1595 with heater and turn signals.



**If you're not in the
market for a '58 car,
should you**

**BUY A
'57
NOW
?**

**With the '58s about
due, this may be your
best time to buy a new
'57 car at bargain rates.
You can buy a new '57
now cheap enough to
offset the automatic
depreciation loss you'll
take when the '58s ar-
rive. Or you can wait—
but you may not be able
to find a new '57 then.**

MOST NEW 1958 MODELS will be announced by the end of this month, or next, and the inevitable question that enters the average new-car buyer's mind is, "Should I buy a '57 model right now and get a new car at a considerable saving, or wait for the '58 models and drive a current year car?"

The *shrewd* car buyer (we'd bet our bottom dollar that any reader of a magazine such as MOTOR TREND certainly is that) already is familiar with the year-end drop in new car prices. Should dealer stocks be at all large with last year's models when it comes time for the usual hoopla, "open-house" atmosphere surrounding the unveiling of the next year's cars at the dealer's showrooms, you can usually depend on the outgoing model prices being at their very rock bottom. In other words, at dealer's cost, or mighty close to it.

If you're interested in "dollar difference" (and who isn't), we can assure you that *the end of the model year is the best time to buy a new car*. You'll get a new car all right, but you should take into consideration two important factors: first, you'll take an automatic depreciation in value of your new car the minute the new models appear; and second, you'll be driving *last year's* car, not the current model. This end-of-the-year dive in prices is substantiated by a simple investigation of the statistics available in such publications as the National Market Reports, Kelley Blue Book, and your local newspaper.

However, if you've read this far, you're probably looking for specific answers as to when to trade in your present car, whether it be a '50, '53, or '56 model, or whatever. To give you the kind of real help that you want with this problem, we interviewed market analysis men with the big companies, zone managers, and scores of new-car salesmen who handle every make car. These are the people who are in a position to have their fingers on the pulse of the car-buying public. However, one source of information that gave us rather startling facts was the Discount Houses. If anyone should know what is going on in the public's car tastes, a place where they handle every make car, domestic and foreign, at so-called "fleet prices," should be able to come up with a fairly accurate picture of the current buying trend.

One such outfit was particularly helpful. Operating in one of the largest coastal cities, this Discount House sold as many as a thousand cars per month during the 1957 model year. His arrangements with the new car distributors and dealers were governed largely by supply and demand. In other words, the cars in less demand could command the lowest, rock-bottom prices, while the more popular cars took a slightly higher price to purchase through this medium. It is interesting to note that the current car on which you could get the best deal was Chevrolet in the low-priced three; this was right at dealer's cost. Ford, the No. 1 nation-wide best seller who replaced Chevrolet in this position for the 1957 model year, took a nominal \$50 over dealer's cost to buy.

Questioned as to how a dealer could make a separate deal with an independent operator such as a Discount House to sell cars at an *absolute cost sales price*, the quick answer was that the sales manager and salesman were eliminated from the deal and therefore no commission had to be paid. Besides this saving, it was reported that all dealers operate on a kick-back from the factory, earning something like \$35 to \$40 per car sold, received as a bonus to the dealer at the end of the model year. So, it is possible that dealers can sell *at cost* and still remain in business.

While all this is probably very interesting, it still doesn't offer you much indication as to when to trade in your present car. Frankly, there's no ironclad rule that you can follow on this score; there are too many variables involved that will alter the situation from car owner to car owner, and from make to make. For instance, a good percentage of all cars are traded in for *business purposes*—to create a good impression with a clean,

continued on page 59

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Tomorrow's Stylists Today

EVERY YEAR the Fisher Body Craftsman's Guild distributes \$77,000 in cash and \$38,000 in university scholarships in its model car building competition. For sheer beauty of design and ingenuity of construction many of the cars look as if they had risen from the drawing boards of skilled designers and were translated into shape by professional craftsmen instead of by youths, 12 to 19 years of age.

About 80 per cent of the contestants

carve their entries out of a solid piece or laminated layers of wood, while the remainder build them of casting plaster.

As Harley Earl, General Motors VP styling chief, says, "These boys will create the cars we will be riding in tomorrow. Their models are full of promise of future benefit to the industry. Some of these boys show that they have no fixed, preconceived ideas and that the sky's the limit. They are the future designers we're looking for."



BY STUDYING the styling of the various rear ends on these customs, you can get some excellent ideas for individualizing your own car. For instance, you've probably never seen a '57 Imperial tail light chrome decorative ring used on a custom; undoubtedly there are other adaptations that could be made than the one chosen by the owner of the '50 Ford convertible. Fin treatment, of course, continues to get major attention from the restyling enthusiasts, with one Thunderbird owner merely accentuating the fins on his '57 model by painting the rear fender

top with a contrasting gold-mist color. The Hudson Italia—only a very few were built—offers an idea with its interesting “exhaust-pipe” tail lights. Once the exterior of an automobile has been altered to an owner's satisfaction, the interior—including the trunk compartment—gets attention next. Sometimes this sequence is reversed but nevertheless it is interesting to note that a customizer considers the *total* car for his creative ability. You'll find excellent tool and equipment arrangements, including space for first aid kits and fire extinguishers, in these customs.

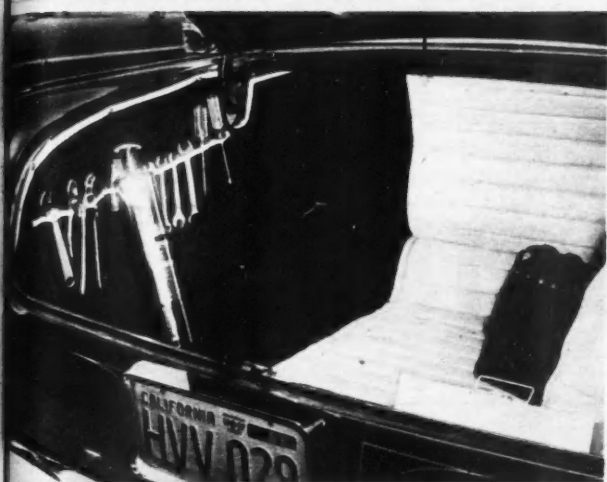
Photo Story by James E. Potter



DETROIT'S EXPERIMENTAL or limited-production cars often give customizers ideas. Tail lights on this Hudson Italia protruding from side of fender look like exhaust stacks.



THE FINS on Dick Jackson's custom Thunderbird are accentuated by gold-painted scalloping. Tail lights are constructed from '53 Chevy lenses and Buick bumper inserts.



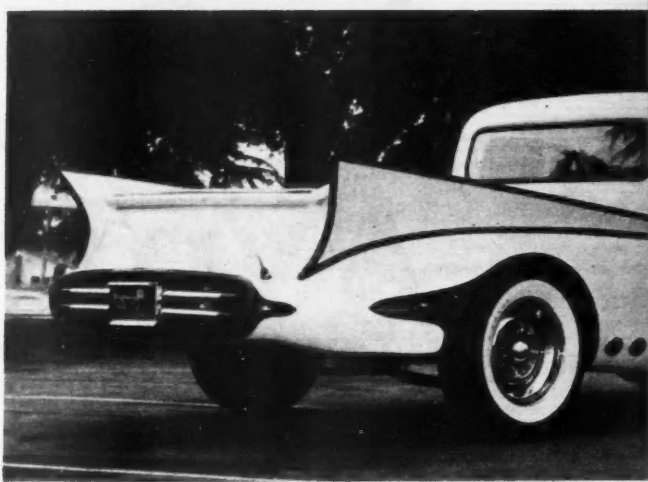
COMPLETELY UPHOLSTERED luggage compartments are commonplace in custom cars. This owner has his tools arranged along the side in special holders for accessibility.



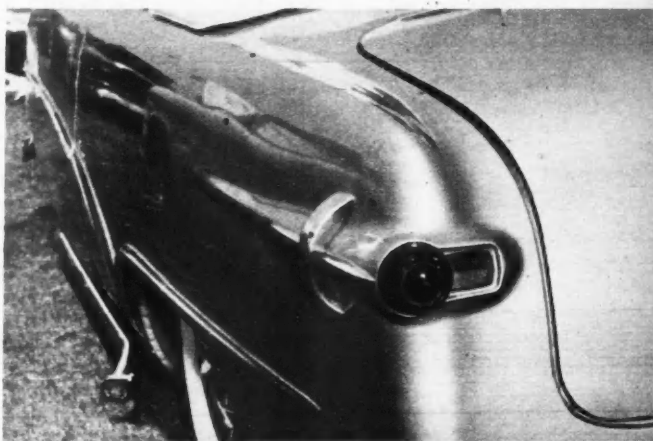
BESIDES IMPROVING the esthetics of an automobile, many customizers devote a lot of time and attention to their tools. This Corvette owner has a neat, functional setup.



EXTRA GAS AND OIL containers, together with a first-aid kit, small fire extinguisher, and a set of hand tools make this trunk compartment functional and beautiful.



ROD & CUSTOM magazine's dream truck recently underwent its first annual restyling, which involved new rear fenders and sharp-pointed fins, in two-toned purple.



A NEAT ADAPTATION of a '57 Imperial tail light ring used with a '53 Olds lens improves rear-end styling of Paul Richards' '50 Ford convertible from Los Angeles.

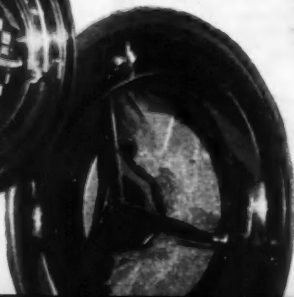
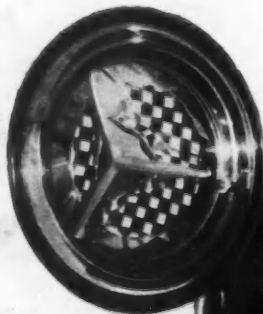


ROBERT A. CAMPBELL

FROM OAK PARK, ILL., Bob Campbell has given his Studebaker Commander convertible a definitely different look by installing a single tail fin assembly on rear deck.

WHIMSICAL WHEELS

AUTOMOTIVE STYLISTS since the Early Thirties have considered the car's wheels one of the most decorative areas on a vehicle. Today, without a doubt, is the era of the fancy hubcaps. In recent years, Detroit's experimental cars have been noted for their distinctive hubcap designs, and on the '57 production cars factory stylists have done an excellent job in bringing individuality to the lowly wheel. Customizers, however, continue to alter the stylist's ideas by further individualizing the caps. Excellent samples of what is being done in the backyard custom shops are shown on these pages. Several-bladed spinners are popular, with the three-bladed variety available in almost any automotive accessory store. Starting with these accessory caps, customizers will give the centers special treatment, such as the hand-painted, checker-board design, or the speckled gold-mist center on another cap shown here. Open-bladed caps, like those on the Continental, have been adapted in various design styles by the customizers. So-called "moon" discs, while not as popular as the open-bladed and flipper-spinner hubs, are seen occasionally, especially a newer version made of burnished aluminum and coming to a point at the center. Incidentally, today's stylish hubcaps are as negotiable as a dollar bill. That's why it is almost imperative that you take some precaution to hinder would-be thieves. We suggest you see page 46 to learn how this can be done easily in a matter of minutes.



PHOTOS BY
JAMES E. POTTER



1.

A simple accessory customizing item is the hubcap spinner; you can get them with or without blades.



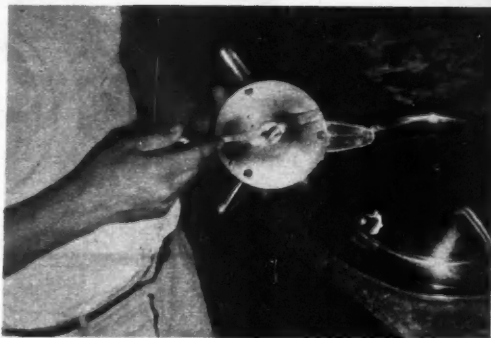
2.

You can install the spinner yourself with the aid of a $\frac{1}{8}$ -inch drill or hand tool to bore hole at hubcap center.



3.

Fit the nut and stud to underside base of bullet for attaching to hubcap.



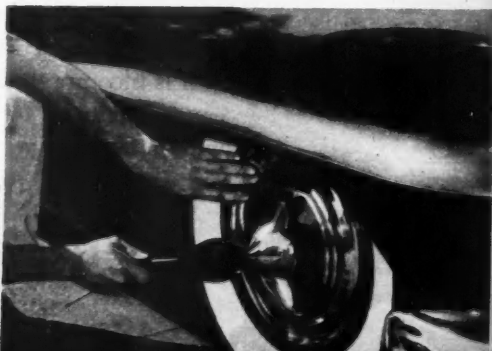
4.

Insert the finished hubcap spinner bullet and blade assembly into hole of hubcap, previously drilled.



5.

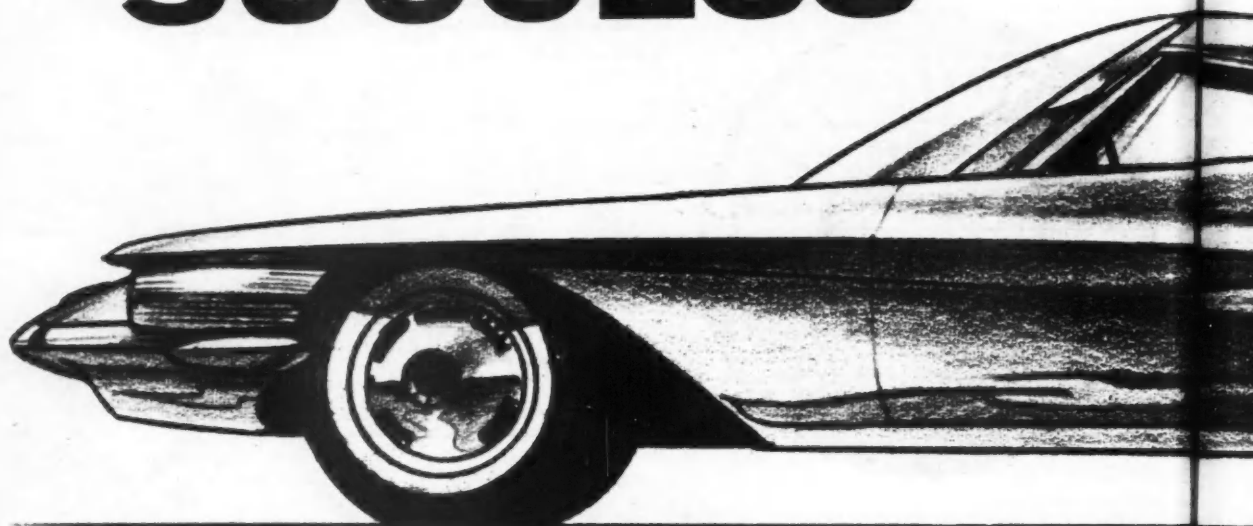
You can get these spinners for practically any type of hubcap; they sell for about \$10 per set.



GEORGE BARRIS



CHRYSLER'S THEORY OF SUCCESS



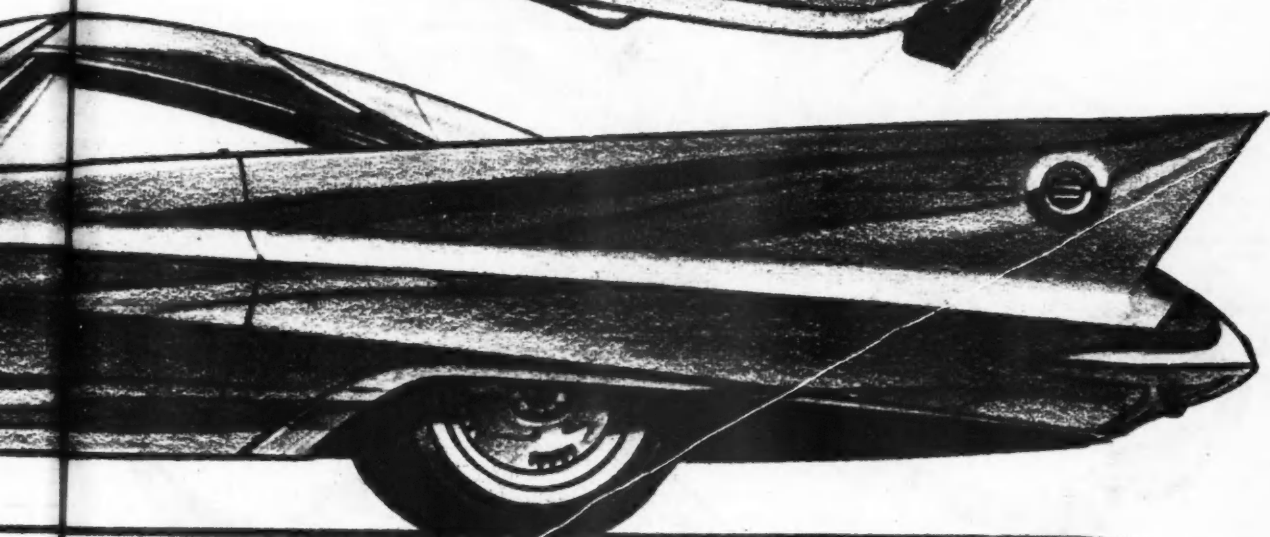
**"Style — and continue to style —
cars that are three y**

Story by Bob Cumberland Illustrations by Stan Mott

THE YEAR 1957 saw dramatic, dynamic changes in the automobile industry — all of them significant, but none quite so exciting as the sudden resurgence of the Chrysler Corporation to a position of serious competition. That this did happen, after years of decline in Chrysler's percentage of total sales, is vindication of the theories of a small group of men who were betting their careers that a completely new approach to styling could bring the company out of its slump.

It is incomprehensible to many that anything as capricious as styling can be reduced to a logical form. Therefore, just what those theories were, how they were formed, and how they worked makes an absorbing study. For years, Chrysler styling policy was dictated by the

(continued on page 43)

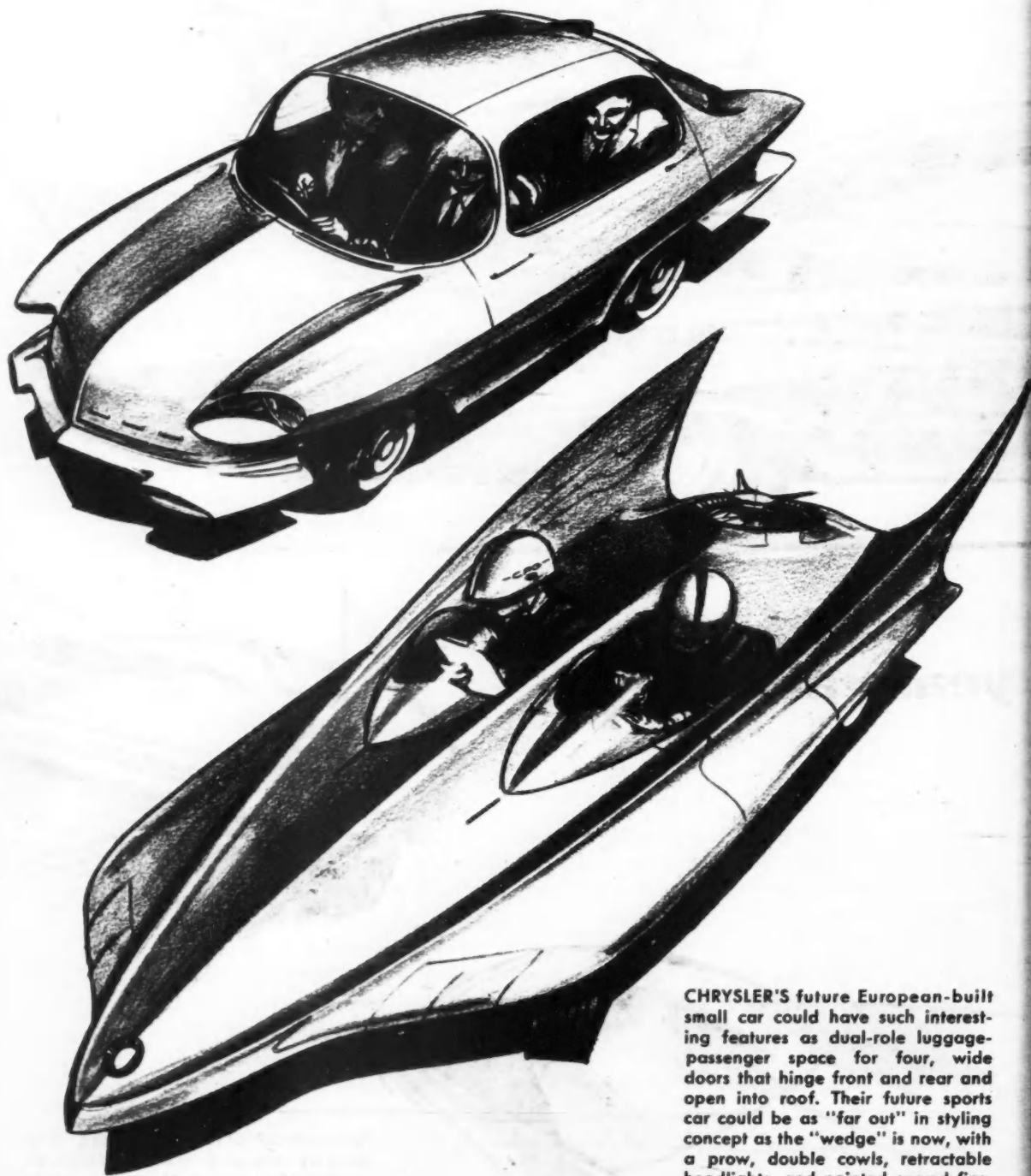


—
ee years ahead!"



FLIGHTSWEEP STYLING has been developed by Chrysler to make all design elements add to illusion of forward motion.

A Chrysler-designed European small car and a Plymouth sports car could be a part of



CHRYSLER'S future European-built small car could have such interesting features as dual-role luggage-passenger space for four, wide doors that hinge front and rear and open into roof. Their future sports car could be as "far out" in styling concept as the "wedge" is now, with a prow, double cowls, retractable headlights, and pointed curved fins.

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CHRYSLER'S THEORY OF SUCCESS

continued from page 40

engineering-minded management. Their ideas—"bigger on the inside, smaller on the outside"—were sound, conservative . . . and unsalable. The public had been conditioned to believe that a lower car was a newer car, and Chrysler, with its box-shaped designs, was running counter to the long and low concept.

No one was more critical of this trend than Virgil Exner, a designer of considerable experience and taste, who had been working on experimental and show cars for Chrysler since the late 'Forties. (Appointed director of styling in 1955, Exner has just recently been elected a vice president of Chrysler Corp.)

As sales of the engineering type cars declined, Exner's Ghia-built show cars were shown throughout the country at every opportunity. Chrysler's "New Worlds in Engineering" show, auto shows, state fairs—all provided valuable information on the public reaction to the ideas embodied in these cars. Public relations experts were quick to report on just which ideas were best received, and some were adopted for production. For example, the 1957 Plymouth reflects the Flightsweep II in its side treatment, today's Dodge's front end character is very similar to that of the Fire Arrow, the DeSoto's studied simplicity is typical of Italian design, as exemplified by the Dart, and the Imperial owes its tail lamps and spare-wheel-in-deck motif to the K-310. This deck treatment can be seen also in one of the Flightsweeps, as can the heavily hooded Imperial headlamps. And, too, all Chrysler Corporation nine-passenger station wagons utilize the seating plan shown in the Plymouth Plainsman.

As public acceptance of these cars increased, so Exner's personal prestige grew within the organization. When, finally, Exner and his staff were given the opportunity to develop a line of cars, they had a logical design philosophy ready for use. First, they reasoned, it would be necessary to catch up with the rest of the industry, since at that time they were quite definitely behind. This they did, by designing the 1955 line of "Forward Look" cars which compared very favorably with competition.

It was the second step that really changed Chrysler's position in the industry. Exner's styling group were determined not to let the gains they had made be lost through stasis. Their goal was to make Chrysler the absolute leader, and their methods were radical. They proposed to very carefully estimate what could be expected in the industry in 1960, with particular regard to dimensions, and to use this information as the framework around which to design their 1957 line. There is no question that at no time were the 1957 cars intended to be released later. The truth is this: these cars are as long, and as low, as Chrysler feels the typical 1960 car would have been, *if Chrysler had not made these cars now.*

The stylists requested an overall height reduction of five inches. The Engineering Department was reluctant, but Styling was able to get Management behind their cause, so the many and difficult engineering problems were attacked.

With seating so low, new frames were necessary for all cars, so the chassis engineers were in effect given a clean slate. Front suspension by torsion bars was adopted, not because of ride consideration alone, but because it was the only way room could be made for suspension, engine, and power accessories under the low hood. Rear axle movement was reduced without hurting the ride characteristics by mounting the axle close to one end of the semi-elliptic springs. This enabled the stylists to realize their height goal, but at the penalty of very limited seat thickness in the center, over the driveline tunnel. The transmission, too, in-

truded with a bump that swallowed the footroom of a front center passenger.

Having achieved an actual physical reduction in height, the stylists set out to pursue their advantage by exploiting every visual trick they knew to make the cars look lower. As a prelude to the cars planned for 1957, fairly large fins were grafted onto the Forward Look cars for 1956, and the result labeled "Flightsweep—the new look of motion." Throughout the year Chrysler's institutional advertising explained this visual theory by every means of mass communication available. This was the first time anyone had tried to sell the philosophical conception of a hard-goods product, and it paid off handsomely.

There are many reasons why this "Flightsweep" is a good idea. Chrysler has made much of the fact that it implies motion, but there are other desirable factors that led to the adoption and retention of the wedge shape. It increases the visual weight of the rear portion of the car, suggesting excellent traction. It suggests the appearance of a jet plane, and therefore modernity. It gives the impression of aerodynamic stability (and in fact does contribute a little to it), and, most important, if it is handled right, it makes a car look lower.

Just how raising part of a car higher makes the whole look lower is something that may not be very easy to understand, but it is easy to see in practice. By contrast with the fins, the upper structure and rear deck appear to be strongly depressed.

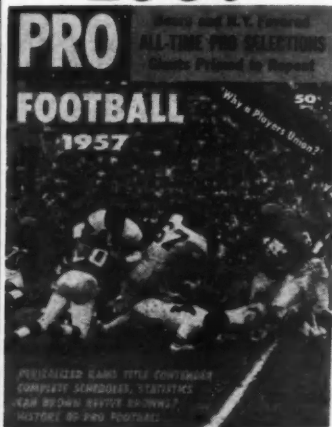
This design concept is not without its disadvantages, of course. Too much mass at the rear can give the impression of tremendous imbalance. Vision to the rear suffers when fins are too large. It becomes difficult, in an extreme application of the theory, to fit the required components into the wedged front. It is also possible that a car may be made to look higher by adding fins. One competitive designer, when he first saw the 1957 Dodge, remarked, "If they'd take those tin fins off that car, it would look lower, and about two feet longer."

This wedge form is not just a passing fancy at Chrysler. We can expect to see this theory developed and exploited for the next several years. The fact that this overall design concept was employed for all five cars, despite their highly differing characteristics, has helped to promote public acceptance of them. This is a policy that GM has followed with satisfying success, and Chrysler will undoubtedly continue it.

Chrysler management, possibly stimulated by their recent success in the domestic market, have been showing some interest of late in the small car market. They have been rumored to be negotiating to buy Standard-Triumph, B.M.C., Rootes, and Fiat at different times. Whether any of these, or some other may come under Chrysler control is a point of much conjecture. In any case, it is unlikely that they will attempt to build such a car here, and they have no overseas manufacturing division now. That makes it a good bet that if they do get into the market, it will be with a Chrysler-designed European small car, and not with a scaled-down wedge form.

The sports car market is something else. Chrysler has some fine super-stock type "sports" cars, but they're overdue to make a Corvette-Thunderbird type car. They have shown plenty of them in their show car program, and Virgil Exner drives the latest of them, Chrysler's Falcon, himself. If pressure from the A.M.A. doesn't hold it back, a sports two-seater Plymouth like the one on the opposite page seems to be a good bet—possibly for 1960. It would be a sure thing to lead the Flightsweep line.

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HANDY hints

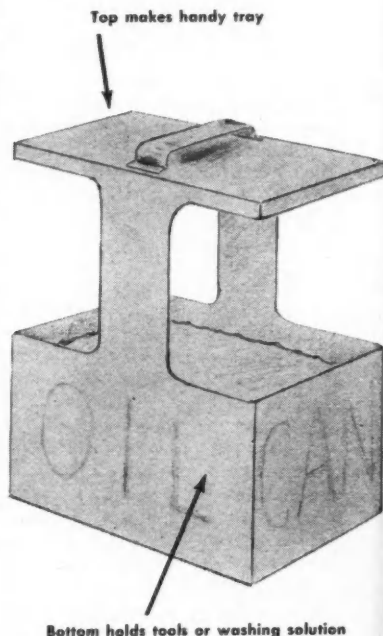
by Rodger Darling

YOU CAN USE USED OIL—Here's a worthwhile use for all that difficult-to-dispose-of crankcase oil that so often clutters up a garage. It's excellent as a long-lasting preservative for fence posts and other construction wood in or near the ground, and as an insect and termite repellent around houses and buildings, when mixed ten parts oil to one part "penta" compound (pentachlorophenol), economically obtainable at paint, hardware, farm supply, and mail-order stores.

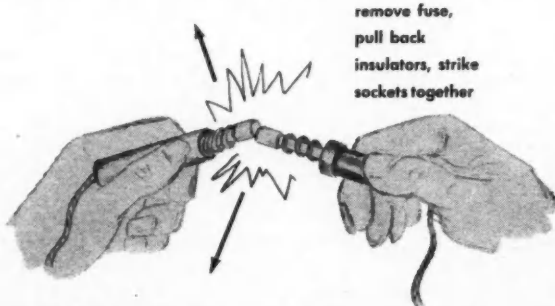
SEE MORE—Like to "get out and get under" and see what makes your car tick? Then paint your garage floor *white* . . . you'll be surprised how much more light will be reflected up onto the under-body. First, clean floor thoroughly. Scrape caked dirt with a shovel or hoe. Then scrub kerosene into grease spots with an old broom. Work some dry cement, garden lime, or fine ashes into the kerosene and grease. Sweep up this mess, then wash the already-cleaner surface with hot water and washing soda. When dry, *paint with oil-resistant concrete floor enamel* for a handsome, easy-to-keep-clean, light-reflecting floor that makes car care a pleasure.

ROAD TROUBLE?—You won't soil your Sunday-go-to-meeting clothes when you have to change a tire or monkey with the motor if you keep a couple of bread wrappers in your car. Opened carefully at both ends, slipped over your wrists, and tucked under your cuffs (or held in place with elastic bands) they'll save your sleeves from dirt and grease.

MAKE A MANY-PURPOSE PAIL—A pail-and-tray combination for car washing or other auto jobs can be made in a few minutes from a ten-quart or five-gallon oil can (*see sketch*), easily cut with a hack saw or tin snips and rough edges filed smooth. It will hold plenty of water or tools, the strong handle is made to order for carrying, and the top is just the right height for a work-tray for cloths, brushes, polishes, tools, etc.—handy to keep small removed parts from getting lost or dirty on the ground.



TAR SPOTS REMOVED—No need to damage your car's fine finish with strong solvents, harsh abrasives, or excess rubbing. Just daub road-tar spots with lard, butter, margarine or kerosene, let soak, and they can quickly be wiped off.



IF CAR RADIO GOES DEAD . . . park in a quiet area and listen for hum that should come from *vibrator*. No hum indicates either blown radio fuse (replace); "open" circuit (look for breaks or loose connections, especially in cable that supplies "juice" to set); or defective vibrator (strike fuse clips together—but do not hold together—*see sketch*).

This may "spark" vibrator back into operation). If vibrator hums, check antenna by disconnecting lead-in at set and substituting length of insulated wire to radio. Hold bared end of this wire in hand and if radio plays, car antenna is faulty or grounded. If none of these quick "in-car" checks help, tube replacement or service is indicated.

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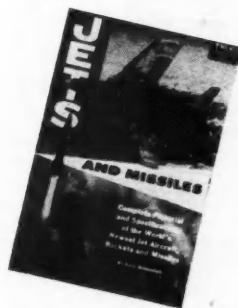
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IF YOU CLASS YOURSELF as one of the carriage trade, you're not apt to be too interested in anything as utilitarian as a Land-Rover. On the other hand, if you ordinarily dress in blue jeans, coveralls, or wear a straw hat, you might find a specific use for this machine.

A week of driving the Land-Rover 109 into the rugged Sierra mountains convinced me that the sales department of the Rover Co. Ltd. of Solihull, Warwickshire, England is right in billing the truck as "... essentially a vehicle of action, having been designed and built to tackle a very wide range of duties." In one of its four versions on three different wheelbases (88-inch pickup and wagon, 107-inch wagon, and 109-inch pickup) it is being used by a practically endless list of customers: farmers, mountaineers, explorers, prospectors, game wardens, policemen, hunters, fishermen. Because it can be rigged with a power take-off, a winch, and a hitch it can be used to fell trees, spray crops, cultivate, or tow other vehicles. It will do practically anything you ask of it—and then some.

The Land-Rover 109 looks bigger than it is—probably because it stands almost 20 inches above the average '57 American car. Yet its overall length, including a 73-inch bed, is only 10 inches more than the length of a Nash Metropolitan.

Much galvanized steel has been employed throughout—virtually wherever there might be hard usage. It's used on the door edges, as trim on the pickup bed, as rubstrips on the benches and bed floor. There's nothing fancy about it, nothing to delude you into thinking you're getting something you're not, though finer appointments are optional. Screwheads show, hinges are out in the open, welds indicate how ruggedly it was assembled. There is another reason, too. It facilitates removal and/or servicing. Remove a few bolts, the top comes off. Loosen a couple of toggle bolts, the windshield can be removed. Open the doors wide and

lift them completely off their hinges. The body can slowly and fairly easily be stripped down to the bare chassis.

Further indication of the inbuilt ruggedness is in the Land-Rover's chassis; two heavy, boxed-in frame sections are used with four crossmembers. The front is suspended independently by heavy semi-elliptics on a solid axle, with the wheels hanging from enclosed ball-and-socket joints. The rear is suspended with semi-floating shafts and semi-elliptics. With such rugged springs and the use of non-adjustable tubular shocks all around, a soft ride is hardly to be expected. What you get is a tolerable-ride for short distances but much choppiness under any condition. On the other hand, you can take corners with little fear of tossing your passengers about.

To get into the Land-Rover, you twist and pull up the handle, open the flat 32- by 43-inch doors, and step up a long two feet from the ground. It's a stretch for a man, but a woman either needs a strong arm to lift her up or the car has to be parked next to a curb. A swing-out platform step would be a practical addition to the long optional list. Once in, driver and passenger are fairly comfortable on the removable padded seats. A third passenger can be accommodated on the middle seat, but legroom is restricted by the gearshift controls. Otherwise, there's lots of legroom, headroom, hiproom and footroom.

You won't be bothered by having to read many instruments, for the only standard ones are the speedometer, ammeter and fuel gauge. (On the steep roads into Sequoia National Park I wished I'd had the temperature gauge, for I didn't know if the engine was overheating without an occasional stop and look-see.) All instruments are in a central panel, where they are not at all easy to read in a quick glance.

Sitting up as high as you do, you get a good view of the road ahead and the terrain around you. It would help, though, if the

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rear sliding window were made wider, for your view to the left rear is quite restricted unless you depend solely on your side view mirror.

When you consider the fact that the Land-Rover is pulled along by a four-cylinder engine rated at only 52 horses at 4000 rpm, you don't wonder that a comfortable highway cruising speed is only 55-60 mph. On a slight incline your speed will start to drop and you'll have to shift down to third, and be content with a maximum speed of 50 mph.

Despite the low horsepower rating of the 122-cubic-inch, F-head engine, you have a healthy torque output of 101 pounds-feet at 1500 rpm. By the judicious selection of gears, this torque can be multiplied so that the lowest overall ratio is 5.40 in fourth gear and a fantastic 40.69 in first gear. This is accomplished through the main gearbox, the transfer box and 4.7 to 1 rear axle.

Paradoxically, the most complicated and most interesting feature is one and the same: the gearbox control. The main gearbox is shifted with the floor-mounted control, requiring double-clutching from first to second since these two gears are not synchromesh. A yellow knob located beside the main gearshift controls two-wheel and four-wheel drive: up for two-wheel drive on the open highway; down for engaging the front-wheel drive so that added traction can be gained on soft surfaces.

The transfer box gives two ratios in the output from the main gearbox. Normally, it is kept in the high position, but for traversing muddy or sandy surfaces, pulling a heavy load, or climbing a steep grade, low transfer is used. Shifting from high to low is done with the clutch, although the car must be stationary, while upshifting can be done at any time. When low transfer is engaged, four-wheel drive is automatically engaged also; it disengages when shifting back to high transfer.

Servicing or working on the various components of the engine presents little difficulty. The raised hood reveals an easily removable intake valve cover, out-in-the-open 14 mm plugs and the Lucas 12-volt distributor, a Solex downdraft carburetor getting its fuel from an S.U. electric fuel pump mounted on the firewall, the oil filler neck at the left front, the oil dipstick below the intake manifold, and an easy-to-get-at exhaust valve cover on the side of the block. Adjustment of the valves could be done even while the engine is hot with no danger of burning yourself on the exhaust manifold.

Don't expect to win any drag races—even against a sick Greyhound—but on the other hand, don't let the steepness of any hill or the softness of the ground underfoot faze you. As Henry Henkel of Rootes Motors in Los Angeles told me before I took off, "When you think it won't make it, that's when it starts to go." He should know. He took one on a 2300-mile round trip to LaPaz in Lower California, which includes some of the roughest terrain you will encounter west of the Rockies.

The less often you have to take on fuel, the more you'll like it; for two reasons. One naturally, involves your billfold. The other is that the 12-gallon tank is located under the far right seat. You have to lift off the seat pad, raise the locker lid, and remove the cap before the attendant can start pumping in the regular fuel required by the 6.7 or 6.9 compression ratio engine. If he's sloppy and spills some gasoline, or if the cap is not secured tightly, you're going to get annoying gas odors in the cab. If you are not carrying a load on the 1200-pound capacity bed, you can expect better than 15.4 mpg around town, 12.8 in the mountains and over 20.4 mpg on the open highway. These were the averages I got on a brand-new Land-Rover, so are under what you should anticipate when the truck is properly broken in.

Should you buy one? Not as a replacement for a car, nor as a substitute for a two-wheel drive pickup. But, if you need a four-wheel drive vehicle in your line of business or are that extreme a hobbyist, it could be a wise choice. At a \$2974 Port of Entry price, the 109 costs more than a Willys Four-Wheel Drive Jeep, a Forward-Cab Willys, and a Dodge Four-Wheel Drive pickup, but less than a Chevy Power Wagon. The smaller version (88-inch wheelbase pickup) sells for \$2561. I'll leave the choice up to you.



MORRIS 1000

An MT Research Report
by Wayne Thoms and Bob Rolofson

THE GAL you label a "plain Jane" at first glance may unfold hidden charms if you give her half a chance and will very likely prove to be a better bargain over the long haul than the glamor doll. The new Morris 1000 is much the same, not that we're suggesting you marry the new 1000 model; we just don't want anyone to turn up his nose at the Morris' wrappings without first sampling its contents.

If you were a small car "pioneer," that is, if you drove one of the first Morris Minors imported back in 1948 and haven't tried one since, it's time to become pleasantly re-educated as we were. Those early Minors, practically dead-ringers for today's models in outward appearance, followed a slow and devious powerplant evolution.

A 55-cubic-inch, side-valve engine was the meager motive force until 1954, when Morris became part of England's giant motor combine, the British Motor Corp. At that time the forerunner of today's power unit was installed. It was a 48-cubic-inch overhead valve mill which helped performance considerably, but was by no means the whole answer. The new package features increased displacement (through judicious use of the boring bar), and a higher compression ratio, resulting in the happy sounding little buzz bomb which is the heart of the new Morris 1000.

First impression is that here is a car which makes no attempt to be anything other than strictly utilitarian. This is not as grim as it might seem, even though the plastic interior upholstery and trim are frugally blended with body metal around the doors and headliner, representing a saving in manufacturing costs.

Slide into the small "semi-bucket"

driver's seat and let your hands fall naturally onto the safety-dished wheel. You will find that the tunnel-mounted gear lever requires a long reach when the seat is all the way back in its fore and aft adjustment, and the seat itself tends to become uncomfortable on a long trip. You must continually remind yourself to sit up straight or you will arrive with an aching back.

The Morris 1000's high arched top contributes about the most headroom of any small sedan we have seen. Leg space is adequate, though not the greatest, with back seat passengers realizing an amazing amount of legroom for such a small machine. One person may sit in the back with the front passenger seat fully folded and have room to stretch his legs fully or take a comfortable nap during a trip.

The rear seat backrest folds down, providing access to the trunk area and creating ample space for carrying long objects. With this sort of arrangement, there is always the possibility that some ingenious soul will devise a means of adapting the Morris into vacation sleeping quarters.

Driver visibility is fine; while you can't see the right front fender, its location is a cinch to judge. Otherwise, visibility is unrestricted with plenty of glass area and no apparent blind spots.

Once again we must make another point in our campaign for instruments. Enough of these warning lights. The Morris 1000 has no water temperature gauge—maybe they don't overheat—and only warning lights for ammeter and oil pressure. Can the saving in cost be so great as to leave a motorist at the mercy of a couple of burned-out light bulbs?

No-one could possibly complain about

incidental storage space. There are two glove compartments (with doors!) plus a large package shelf below.

Fit of body panels, doors, etc. is uniformly good, which is more than we could say for the paint job on the test car. Examination revealed orange peel and runs, inside and out. In other words, a careless job of applying the enamel—certainly not up to the quality of the rest of the car.

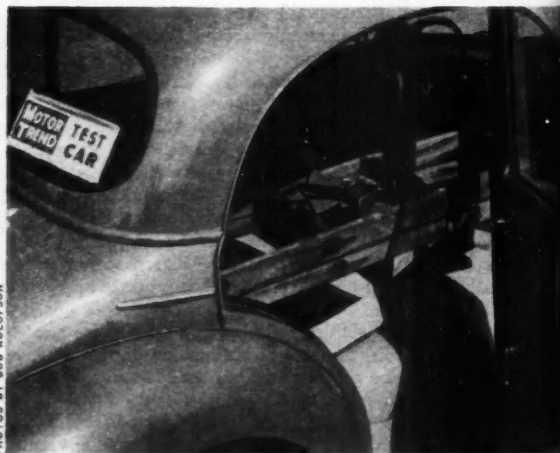
Flip on the ignition and a reassuring click-click of the fuel pump filling the single SU carburetor is the first sound you hear . . . a sound, incidentally, which is heard at every stop because the pump transmits its pulsations right through the firewall. Pull the starter knob and the engine pops happily to life.

We had the pleasure of breaking in the new car, a four-door sedan, with instructions not to baby it. We didn't, and the little Morris 1000 thrived on the treatment, giving sensational gas mileage in the bargain! A 200-mile trip, begun with less than 500 miles on the odometer, was made at highway speeds varying from 55 mph to just over 70 and the car felt safe, completely in hand and absolutely stable. On one segment of twisting mountains, picked especially because of the many hairpins and switchbacks, there was no difficulty in safely maintaining considerably higher speeds than the rest of the traffic. Passing was simply a matter of finding a safe place, dropping down a cog to third and occasionally second, and punching the accelerator. The startled looks of the motorists in their bulkier machinery, some of which carried 10 times the horsepower of the Morris 1000, became routine.

One criticism of the 1000 showed up,



LENGTHY INTERIOR when needed is demonstrated by seven-foot step ladder handled with room to spare.



Spartan utility of seats and upholstery trim is not unattractive. Leather-grained plastic should prove durable.

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ROAD TEST



ACCELERATION RUNS revealed rear axle windup while laying rubber in first gear. Fifth wheel records speeds.

under abnormal conditions: on hard turns under power, the inside rear wheel sets up a terrific hop. Morris 1000 owners tell us that this is congenital and is apparently a complex function of rear suspension geometry under the stresses imposed while cornering under full power. In normal driving it will not occur.

The Morris 1000 took another of our favorite test roads with ease. We call it "Ten Miles to Destruction" and it consists of that distance of winding, up-and-down, unpaved corduroy highway with an occasional chuckhole. Unless a car's suspension is firm and the steering light and nimble, anything faster than a walk becomes positively unsafe. The Morris chewed up the distance in record time, emerging with nary a body rattle, a fitting tribute to the four-door's unit construction.

A safe, controllable drift with a modest amount of body roll can be induced just about as easily as discussing it, but make certain to use recommended tire pressures, a critical factor in rear-end breakaway. Hard dips are no strain and there is no

pitch or wallow coming out at speed. The front torsion bars take care of holding the nose level during panic braking.

Brakes, while small, do a consistently fine job. Fade can be induced after six panic stops from 50 miles per hour, but further stops show that fade remains fairly constant, and a brief cooling off period brings about quick recovery.

The transmission appears to be as uncommonly rugged as it is easy to use. On a couple of occasions while winding up in second gear we inadvertently shifted back into first instead of into third. The amazing fact is that the non-synchro first was entered with only a slight clash. Fortunately, we did not release the clutch and no damage was done except to our driving ego.

There isn't much room for argument when we conclude that the Morris 1000 is a good buy, one of the best buys in the growing small car field. It is as easy and delightful to drive as it is economical to operate and maintain. It seems that the car has been vastly underrated by pro-



SINGLE INSTRUMENT, centered, comprises speedometer, warning lights. Two glove compartments are convenient.

spective purchasers. We trust that the word will get around and this state of affairs will shortly change itself.

PERFORMANCE

ACCELERATION: Max. speed in gears, 1st 24 mph, 2nd 37, 3rd 62, top 73.7. Start to 45 mph: 14.6 secs., to 60: 28.0, 1/4-mile: 24.1 secs. and 57.2 mph, 30-50: 11.9, 45-60: 12.9.

FUEL CONSUMPTION: Average for 873 miles 32.0 mpg. (approx. 20% open highway miles, rest city traffic).

BRAKES: Good for 6 stops from 60 to 20 mph before fade encountered.

SPECIFICATIONS

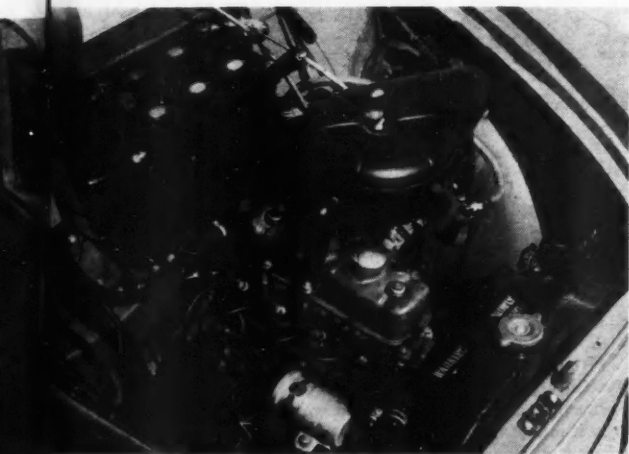
ENGINE: 4-cyl. ohv. Bore 2.48 Stroke 3.00. Stroke/bore ratio 8.3:1. Displacement 58.0 cu. in. Advertised bhp 37 @ 4800 rpm. Bhp per cu. in. .64. Piston speed @ max. bhp 2400 ft. per min. Max. bmep 124.8 psi. Max. torque 48 lbs.-ft. @ 3000 rpm.

TRANSMISSION: Borg & Beck single plate dry clutch. 4 forward speeds, top 3 synchronized. Overall ratios: 16.51, 10.8, 6.42, 4.55. Rear axle ratio 4.55:1.

CHASSIS: Unit construction. Front suspension—torsion bars; rear—Independent 2 longitudinal semi-elliptics with piston-type shocks. 5.00 x 14 tubeless tires. Lock-heel hydraulic one leading shoe brakes. Rack-and-pinion steering gear, with 34.5-ft. turning circle, 2.5 turns lock-to-lock.

DIMENSIONS: Wheelbase 86.0 in., overall length 148.0, overall height 60.0, overall width 61.0, minimum clearance 7.0, front tread 50.5, rear tread 50.2, weight 1770 lbs. (56% front, 44% rear), weight/bhp ratio 48.0:1.

PRICES (F.O.B. port of entry): 2D sedan \$1595, 4D sedan \$1695, tourer (convertible) \$1645, wagon \$1795. Heater, sun visor standard.



TINY ENGINE does businesslike job easily and with great economy. All components are easily accessible.



BODY ROLL in hard turn appears excessive but does not feel so to driver. Car corners with sports car agility.

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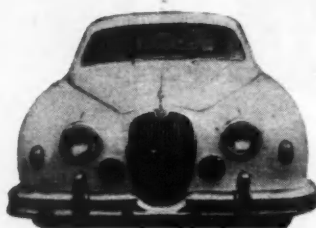
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JAGUAR 3.4 automatic

An MT Research Report

WHEN WE GAVE YOU our road test of the Jaguar 3.4 sedan (July MT) we noted that an automatic Borg-Warner torque converter transmission was available for an additional \$250 over the F.O.B. Los Angeles price of \$4445. Since that time we have had the opportunity to drive such a model, which in outer appearances is the same. The difference in the interior lies in the bench-type front seat, divided in the middle for separate fore-and-aft adjustments by driver and passenger, instead of the bucket seats that are standard with the manual box. Performance-wise, it's just about the same, giving under 11 seconds for a standing start to 60 mph, a top speed well over 110 mph, and fuel economy in the neighborhood of 17.7 mpg.

In our estimation the four-speed manual box gives a smoother flow of power from the one-horsepower-per-cubic-inch 210-bhp six. It may be a matter of not properly matching the transmission to the engine (or vice-versa—for they do have to be matched to each other). When they have the wealth of experience

can downshift to intermediate without depressing the throttle and you can hold it in that range for as long as is needed. It doesn't operate the same as a D-3 range of Hydra-Matic, in that there is more of a free-wheeling effect when you take your foot off the throttle.

LOW is used as with all automatics—that is for more low-speed acceleration and engine braking below 45 mph. It's not an advisable practice using LOW too often, for with the quadrant located in the somewhat awkward center panel position you're liable to sometimes flip the control from DRIVE past LOW to REVERSE (even though you have to raise the lever slightly to enter the R gate). Coming back the other way, you may accidentally over-shoot D and go into PARK, knocking off a few teeth from the parking pawl.

For normal or faster driving, smoother shifts between gears would be welcomed. The lurching or surging that accompanies each shift, in combination with the servo braking action that almost locks up the brakes before your final stop, can be annoying—at least



PHOTOS BY BOB D'OLIVO



behind them in working with automatic transmissions that U.S. manufacturers have, the British will probably equal or exceed the power transfer efficiency of American-built cars.

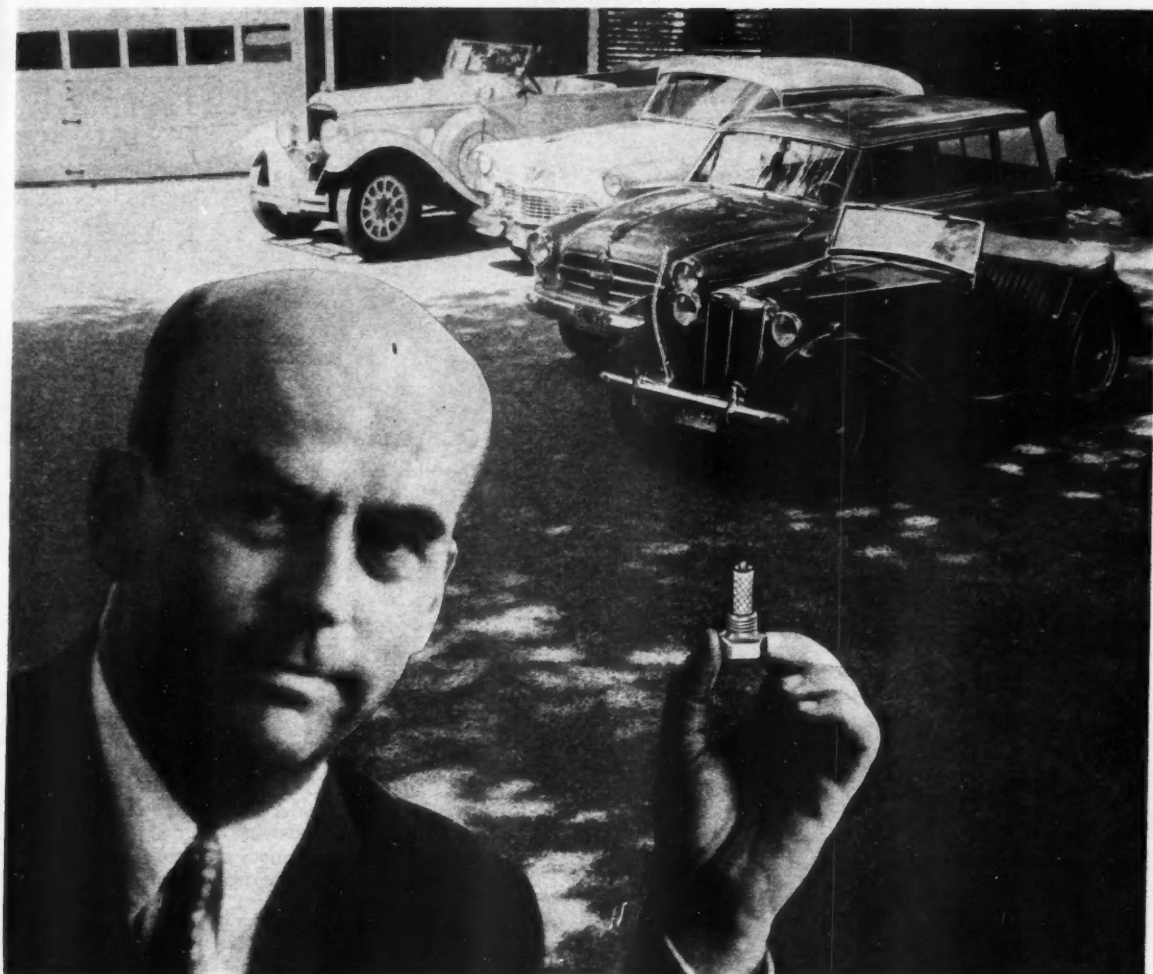
The Borg-Warner transmission used on the 3.4 Jaguar is a typical torque converter (similar to that used on Ford and Studebaker), with three ratios of low, intermediate, and drive. DRIVE is for all normal driving. When you want more acceleration below 52 mph, you depress the throttle and the torque converter goes into its intermediate range; it automatically upshifts around 55 mph. Over 52 mph and under 68 mph you floorboard the throttle and it stays in intermediate range to 68 mph. If you want to keep it in intermediate, you operate the switch mounted on the far left of the dash panel (in the same position as the in-out switch for overdrive-equipped cars). By flipping it to the left you

until you become accustomed to it. In comparison, the Borg-Warner transmission feels much like the early Hydra-Matics.

One definite advantage this transmission has over other automatics on American cars is the use of an anti-creep device, à la Studebaker. When you come to a stop on the level or on a slight incline by applying the brake, you activate a check valve in the hydraulic system. When you remove your foot from the brake, the shoes are still up against the drums—locked there by pressure in the hydraulic lines. You move forward again by exerting slight throttle pressure.

If you've grown awfully tired of pumping the clutch and pushing the floor stick of your present 2.4 or 3.4 Jaguar, you might want to pay the \$250 tariff for the B-W transmission on your next Jag. We wouldn't, for we like that four-speed synchro box too much.

(Advertisement)



The Story of Magna-Power

—the amazing magnesium-alloy accessory
that actually triples the life of car engines

The principle of Magna-Power was discovered by accident! Winthrop Johns, M.I.T. graduate and automotive specialist, discovered it while testing engines for the U. S. Navy. Read how he developed this magnesium-alloy accessory . . . how it stops corrosion, the major cause of engine wear . . . how it can help your car engine stay young, healthy and more powerful for extra thousands of miles!

During the hectic early years of World War II, a brilliant young M. I. T. graduate named Win Johns was doing vital engine testing work for the U. S. Navy. One of the rigorous tests was designed to discover how long an engine could be run at 250° F. before it burned out. One engine was set up and run at 1800 for 50 hrs. But—at the end of that time, the

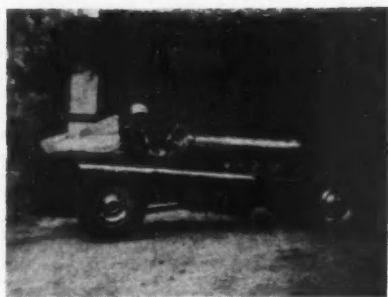
engine showed no sign of burning out. Johns and his staff tore the engine down and discovered, to their amazement, that there was little or no wear!

Discovers Principle

Johns reasoned that this test engine somehow was not being



Original test car still performs with amazing power and smoothness—with 176,129 miles on it! Johns (above) had the pistons removed for inspection when the car registered 116,942 miles and there was practically no wear! Magna-Power helps any car—old or new—stay young, healthy and more powerful longer!



Pike's Peak Racer built by George Balster of Lincoln, Neb., contains a 3-carb, full-race '50 Studebaker engine. George credits Magna-Power with providing "more power, faster starting and a remarkable elimination of wear on all moving parts." Also Magna-Powered is George's family car, a '51 Chev. Sedan with 75,000 miles on it!



Fabulous '51 Ford is shown here with owner Lucius Kingman of McLean, Va. Purchased new by Kingman—Magna-Power was installed in it after 15,000 miles—the car now registers over 90,000 miles. "It has more power now than when it was new," says Kingman. "The spark plugs last about 40,000 miles! Amazingly, it burns almost no oil—maybe a quart every 1,500 miles!"

MAGNA POWER (continued)



Continental Classic is kept in like-new condition by owner C. F. Childers of Portland, Ore. Since installing a Magna-Power in this '48 Cont., Childers says, "I can notice an increase of power. It runs smoother than a new car. The plugs stay perfectly clean. And even after being garaged for several weeks, I get trouble-free starting."

subjected to the factors that cause wear under normal operating conditions. It was found that since this engine was operating *above* the dew point of the blow-by gases, no moisture was getting into the oil, as is common with car engines. Johns knew that sulphur present in all grades of gasoline was (after combustion) combining with moisture in car engine crankcases and forming sulphuric acid. It is this sulphuric acid that attacks the vital parts of engines, aids the formation of damaging sludges, gums and resins and causes 90% of all engine wear. Johns then reasoned that if there were some way to destroy the acid that forms in the crankcase of car engines, he would be able to stop the major cause of engine wear and power fade.

Develops Magna-Power

Putting this principle to work, Johns experimented by putting various alloys of magnesium in engine oil to help neutralize and destroy the corrosive acids as they are formed. After many months he developed a special magnesium alloy that was perfect for the job.

Then came months and months of testing to prove beyond a shadow of a doubt that his discovery actually did stop the major cause of engine wear. Johns equipped a 1940 Ford coupe with his special magnesium alloy by attaching a bar of the metal to his crankcase drain plug. He also attached a tiny Alnico magnet to the magnesium to remove any iron or steel filings in the oil. The car was then driven in normal use—stop and go, short trips and long trips. After the Ford had been driven 115,000 miles *without* a single major overhaul or repair, the pistons were removed for inspection. Everyone—including the inventor himself—was astonished!

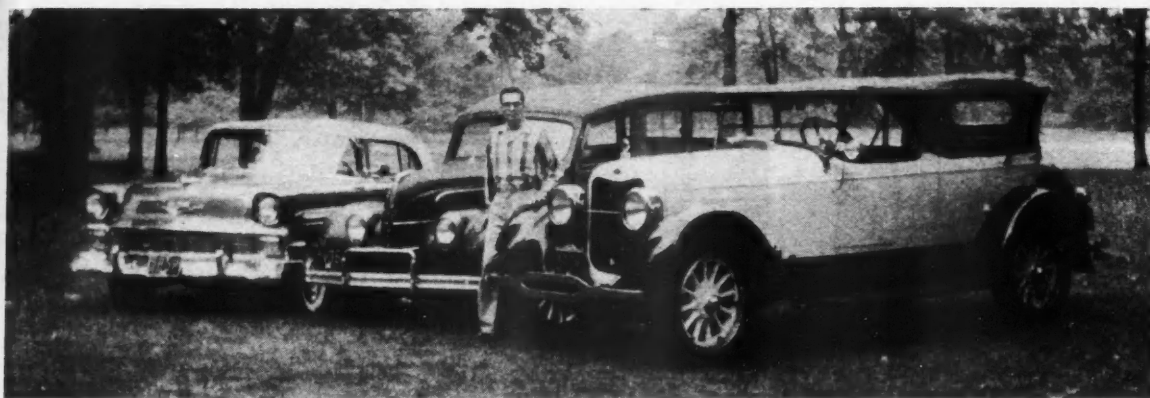
There were practically no signs of wear! Some of the original machining marks were still visible on the rings and pistons. The engine was put back together again.

Today Johns' 1940 Ford is still being driven every day. It now has 176,129 miles on it! Imagine! 176,129 miles! It still retains the pep and power it had the day it came off the assembly line!

Many thousands of miles of controlled tests were conducted on other cars and trucks before Johns put Magna-Power on the market. In one notable experiment, the Farmers & Consumers Dairy Co. of Morristown, N.J., put Magna-Power in half of their 22 door-to-door delivery trucks. After being driven many thousands of miles, the engines without Magna-Power showed $5\frac{1}{2}$ times more wear than that of the engines with Magna-Power.

How Magna-Power Works

Just exactly what is Magna-Power—how does it work? Actually, Magna-Power is a very simple little device. It is a carefully machined bar of a special magnesium-alloy metal. It is attached to the crankcase drain plug (the correct size for your car). It cannot come in contact with moving parts. But it is always in



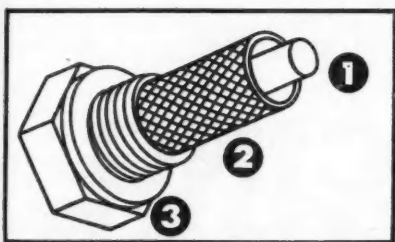
Magna-Powered trio, owned by the Stout brothers, Arthur and Robert, of Plainfield, N. J., is made up of '56 Chev Bel-Aire Conv., '38 Ford Station Wagon and '26 Lincoln Phaeton (Brunn Body). Bob (shown above) and Art are firm boosters of Magna-Power. "All of our cars have more pep and power due to the Magna-Powers

in them," Art states. "Our 'baby,' the prize-winning Lincoln, doesn't burn any oil at all. And the oil stays perfectly clean between changes. I'd say a Magna-Power is definitely worth much more than the price you pay for it!" Not shown above is Art's family car, a '54 Nash Rambler—also Magna-Powered!

direct contact with your engine oil. Here are the three main things Magna-Power does: 1. effectively neutralizes (destroys) corrosive acids in your oil; 2. greatly reduces the formation of damaging sludges, gums, and resins; 3. destroys the cause of deposits on spark plugs . . . deposits that rob by pre-ignition and internal shorting.

Magna-Power's Benefits

The direct benefits Magna-Power can give your car engine are these: It reduces wear on vital moving parts up to 80%; it increases engine power by eliminating sludge and resin formations; it slows the deposit build-up on spark plugs—promotes far longer plug life; it allows you to use your oil efficiently for over 3,000 miles before a change is necessary.



1. Powerful Alnico magnet that removes damaging iron and steel filings from the oil.
2. Special magnesium alloy metal that constantly neutralizes and destroys all corrosive acid in the oil as it forms.
3. Crankcase drain plug—the correct size for your car.

Why Magna-Power is not in new cars

A new car (or a rebuilt one) has to go through a break-in period. The new car engine must actually "wear in"—loosen up for maximum efficiency. Because Magna-Power cuts engine wear by 80%, new car engines would not break in correctly until about 25,000 miles! Magna-Power should be installed in new cars at the end of the normal break-in period when you change oil. Cars that are already broken in—whether your have 5,000, 20,000, 50,000 or 75,000 miles on your car—can be greatly benefited by Magna-Power immediately!

30-DAY FREE TRIAL

We are so confident of Magna-Power's benefits that we are offering it to car owners on a free trial basis. You merely mail in the coupon below. We send you your Magna-Power—already attached to the correct crankcase drain plug for your car. It's easy to install. You install it and start enjoying the

benefits of it. At the end of thirty days you pay \$4.95 (plus 25c postage and handling). If you are not entirely satisfied, you may return the Magna-Power at that time—and it has cost you *nothing!* (But—satisfaction is so great that our percentage of returns is only a *fraction of one per cent*).

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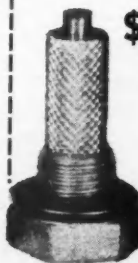
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AT THE HEIGHT of its postwar boom, with more cars and more races than ever before, European motor racing faces a crisis which could change the whole scene unless the answers are found quickly. It is not one problem, but several, which have been brought into sharp focus by recent events, and now threaten the future of the sport. They concern safety, finance, the design of cars, and the training of drivers. They may be solved only by a thorough re-appraisal of present racing rules and formulae.

The problem of safety, never far from the public mind since the Le Mans disaster of 1955, has been raised again by the accident in the Mille Miglia which cost the lives of the Marquis de Portago, his passenger, Eddie Nelson, and nine spectators, including five children. The Italian Government at once banned all road races, whether by cars or motorcycles, forcing cancellation of several classic events including the oldest of all, the Targa Florio, which has an unsurpassed safety record. Fangio said he would never drive in the Mille Miglia again as it was too dangerous. Dr. Biscaretti, president of A.N.F.I.A.A., the Italian vehicle manufacturers' federation, declared that the race no longer had any practical value or interest for the industry. But since Fiat produces over 90 per cent of Italian cars, and does not race, this point of view was expected of the A.N.F.I.A.A. Representatives of Ferrari, Maserati and Stanguellini in a conference at Modena took a different view, praising the Mille Miglia's contribution to the development of the modern car, although they did not go so far as to support its continuance in the present form.

Vincenzo Florio, creator of the Targa Florio, summed up the views of many sports enthusiasts by saying, "As a man I cannot but express the most profound sorrow at the misfortune which has afflicted the Mille Miglia. As a sportsman and as the originator of the race which has been run more times than any other, I hope, however, that this unhappy episode will not, under the impulse of the first wave of emotion, provoke a renewal of excessive and pessimistic restrictions against

ante the safety of millions of spectators strung out along a thousand miles of road? From outside Italy it is easy to see the race as a dangerous anachronism, but this takes no account of the Italian public's innate love of speed, and their fatalistic disregard for danger. Crazy they press forward with their children to within inches of cars flashing by at 180 mph, or lie in the ditches on the outside of curves, where a skidding car must overwhelm them—presenting an insuperable problem.

When it started in 1927, the Mille Miglia was a sporting endurance test for car and crew, run at speeds up to 80 mph or so. Now, for drivers of the fastest cars it represents 10 hours of unbelievable tension and concentration during which they hurtle at speeds up to 180 mph down a narrow lane between ranks of spectators, knowing that the slightest incident may provoke a catastrophe which they are powerless to avert. The damage potential rises as the square of the speed, and an accident to one of the 400-hp monsters which pass for sports cars under present regulations has the character of an explosion.

It has been suggested that the race might be run over several laps of a shorter circuit, but even a circuit of 50 miles could not be provided with adequate safeguards to guarantee spectator safety. As the crowd would be more closely packed, the results of any one accident could be much worse. A.N.F.I.A.A. proposed that races should be limited to special race tracks, with Monza cited as the ideal example. Here cars have burst tires and broken their steering at high speed without the slightest harm to drivers or spectators—but there is only one Monza. When Castellotti was killed at the Modena autodrome, the wreck of his Ferrari jumped a concrete wall and ended up in one of the stands. Fortunately it was only a practice day; otherwise the death roll would have been higher than in the Mille Miglia.

Britain, which has more regular motor racing than any other country, has a good safety record. All racing is on private tracks with wide grass verges and earth banks; straights are short and top speeds rarely reach 150 mph.

Drivers themselves are becoming uneasy over the performance of the latest V8 Maserati and the 4.1-liter Ferraris. The Maserati has 10 speeds and will exceed 100 mph in eight of them. It will spin its wheels with ease in almost any gear, carrying a crew of two and 55 Imperial gallons of fuel—a total load of 670 pounds—and will accelerate from 75 to 125 mph in six seconds. The Ferraris, with V-12 engines of up to 4.1 liters, are nearly as fast and will exceed 180 mph even with open bodywork. With coupe bodies 200 mph is now in sight. Only a handful of the world's top drivers are capable of handling such monsters effectively. Why build them?

To a large extent the desire to sell in the American market is responsible. Already the chase after the dollar is threatening to degrade the standards of roadholding and braking hitherto maintained on high performance production models, and it stands in the way of a limitation on engine size for sports cars. First, there was the hope that if no limit were placed on engine size, the Corvettes and Thunderbirds might eventually be attracted to the classic European sports car events. Secondly there was the fear that the American public will not buy sports cars which are left behind in the rush from the traffic lights by family sedans with power packs which can accelerate from 0 to 60 mph in eight to 10 seconds and with further modification will do their 160 mph at Daytona. To achieve this kind of performance, cubic capacity is the only ready answer. Meanwhile the unrestrained increase in performance is outstripping any feasible safety measures and producing a king-sized problem for sporting authorities. Tony Rolt, famous driver and Le Mans winner, has suggested restricting sports cars to production engines, leaving designers freedom on the chassis.

Grand Prix racing under the current European formula (2500cc unsupercharged or 750cc supercharged) is threatened by two major problems: a shortage of top rank drivers and a financial crisis. To drive the fast, lightweight single-seaters all-out on Europe's tricky road circuits requires a long apprenticeship and a special type of temperament. Some outstanding sports car stars have failed to make the transition, and the supply of new men is running short. Italy, which for years has had a near-monopoly in the production of successful Grand Prix cars, at present has no first rank driver, and must rely on foreigners to drive the Ferraris and Maseratis. Ascari was killed, Villorelli retired after several bad crashes, and Farina, who has had innumerable accidents, is now near to retirement. In 1955 there was a whole group of promising newcomers, but where are they now? Castellotti is dead, Mantovani lost a leg, Perdisa gave up racing, Musso has just recovered from illness and Maglioli has failed to reach Grand Prix star status, although still performing brilliantly in sports cars. Only Britain has a reasonably adequate supply of drivers, with Moss, Collins, Hawthorn and Brooks as stars of international class, Lewis-Evans just signed up by Ferrari, and many good second rank men gaining experience. Formula III racing with 500cc miniatures, and a big program of sports car racing with small-engined cars like the Cooper, Lotus, MG, Austin-Healey, Tri-

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in EUROPE

a race with a tradition as glorious as the Mille Miglia, and in general against all motoring competitions in our country."

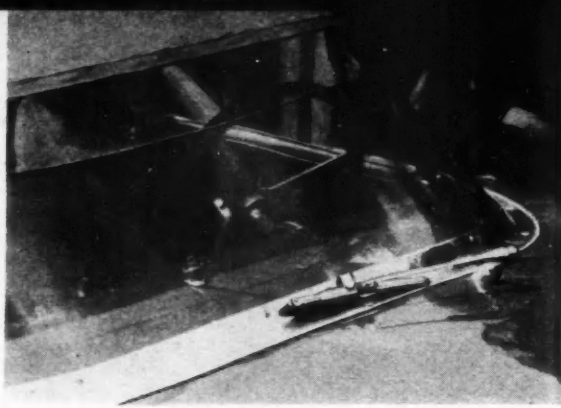
Count Maggi, smarting under the press attacks which had been made on him and other members of the organizing committee, told me defiantly, "The Italian public wants this race, and in one form or another it will go on. As soon as the ban on road racing is lifted, we will go ahead with plans for the next event." There were several fatal accidents last year, and the race was permitted this year only after prolonged parliamentary debate. Entries were limited, the organizers took out heavy insurance to cover drivers and spectators, and there were more signals and more supervision, but what supervision could guar-

Another proposal is to restrict major sports car events to production cars and Gran Turismo cars (at least 100 closed models or 200 open models produced in a year) to get back to a type of car which the public can buy. Of 295 cars which started in the 1957 Mille Miglia, only a dozen or so were specially constructed sports racing models in the unlimited capacity class, and Gendebien, who took third place in a three-liter Gran Turismo Ferrari coupe, was only eight minutes behind the winner in a 10½-hour race. Unfortunately such a rule would bar constructors like Lotus, Cooper, Elva, Osca, and Stanguellini in the critical stages of their careers.

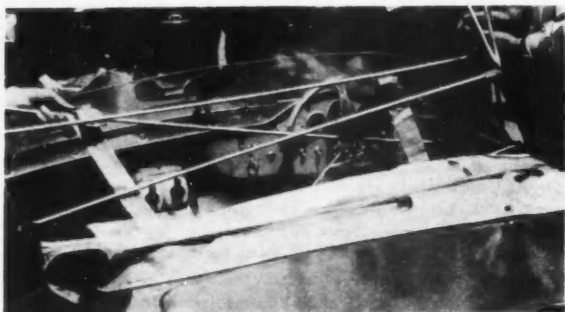
Then why not limit engine size in sports cars as is done with Grand Prix single-seaters?



LEADING THE BkUTE POWER trend in European sports cars is this 4.5-litre Maserati which will exceed 185 mph.



REQUIRED EQUIPMENT fulfills the letter but not the intent of regulations. Note clamped-down wiper blade.



FOLDING TOP required by rules is designed only to pass technical inspection and is too flimsy to be practical.

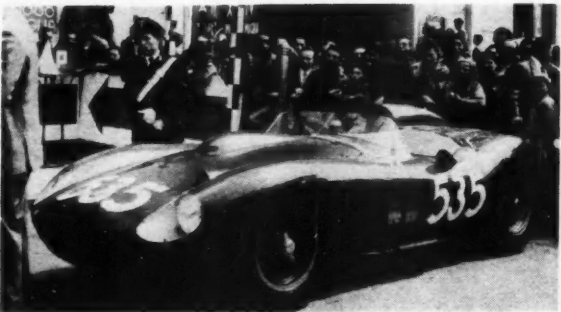


PHOTO BY GORDON WILKINS

TO MEET COMPETITION, Ferrari produced this 4.1-litre V-12 which can meet salt-flat speeds on road circuits.

RACING CRISIS continued

umph and Elva has provided an excellent training ground, supplemented recently by training schools at Brands Hatch and Mallory Park. Now the Italians are trying to develop new drivers by introducing a class for 1100cc cars built from series production parts, but it will take time. Meanwhile the financial crisis looms.

Grand Prix cars bear no relationship to salable production models. With the exception of BRM and Vanwall and periodical incursions by Mercedes-Benz, this kind of racing is kept going by constructors who are in it for the money rather than the advertising. But organizers find it increasingly difficult to pay the large sums in starting money and expenses which the leading constructors demand. So representatives of the national clubs of Britain, Belgium, France, Monaco, Holland and Germany met in Brussels and jointly agreed on a new scale of starting money for their national Grands Prix.

This produced an immediate uproar. Ferrari and Maserati agreed to appear at Monaco but rejected the terms for Spa. Belgian and Dutch Grand Prix were cancelled, and the future of other events came into question. It was unrealistic to try to fix starting money without having the Italian club and the car constructors around the table. Race organizers complain that it is impossible to get some leading constructors to discuss costs in a businesslike way. Fairly sharp horse-trading is the rule. Demands vary according to what the traffic will stand. For a 1956 Silverstone race, Ferrari and Maserati demanded \$2800 per car, plus air transport right from Italy

and back which added another \$1400 per car. Racing car constructors have very heavy expenses: four Ferrari single-seaters were written off at Monaco alone and about 50 per cent of the take goes to the driver, but car clubs cannot face heavy losses on race organization. The closing down of the Connaught organization highlights the urgency of the problem. After years of patient effort on a shoestring, Connaught had achieved sufficient success to be invited to all this year's major races. Their financial budget, which hitherto had involved heavy personal payments by their backer, Kenneth McAlpine, assumed a steady inflow of starting money. With two major events cancelled and others doubtful, they had to give up the struggle.

Introduction of Formula II (1500cc unblown cars running on gasoline) raised new hopes of cutting the cost of single-seater racing. The Lotus and Cooper looked like the prototypes of a new breed of low-cost racing cars, but when the Ferrari appeared—a scaled-down version of the Formula I car giving a reputed 190 horsepower—it was obvious that it would be nearly as costly as current cars, and at least as difficult to drive.

Throughout the history of Grand Prix racing, performance has been kept under control by restrictions on engine size, car weight or fuel consumption. This has stimulated technical progress. A further reduction in engine size might speed the evolution of steering and suspension for light vehicles, which would be useful to the 500cc baby cars that will be the mass-selling European family cars of the future. Formula III (500cc unsupercharged) has already proved an excellent training ground for British drivers. There is a precedent in

the motorcycle world, where the Italian motorcycle federation faced with 100-mph laps by the Gileras in the Isle of Man T.T. races, is proposing that future road racing machines be limited to 175cc.

Nevertheless, Grand Prix racing should be the finest expression of automobile engineering for maximum performance. It cannot retain its attraction if the cars are far slower than sports cars, as they will be if the present uncontrolled evolution of sports racing machines continues. The fact that Le Mans passed off without serious incident this year, and the Italian monsters disappeared during the first few hours does not detract from the seriousness of the problem. Last year, the Le Mans organizers tried to initiate reform by restricting engines of prototypes to 2500cc and imposing a limit on fuel consumption. They also made stricter regulations regarding body dimensions, full-width windscreens, screen wipers and folding tops. The cubic capacity and fuel consumption limits received no support elsewhere and the whole effort resulted in the race being excluded from the 1956 World Championship. The bodywork regulations have since been adopted generally but in practice have produced folding tops which are a mockery erected only for the scrutineers and wipers which are clamped down in case they should come into use even by accident and so scratch the plastic screen. The recent resolution by the American Automobile Manufacturers Association, banning participation in speed events and calling a halt to performance claims in advertising may help to free sports car manufacturers from the need to compete in the American horsepower race, and so, make reform easier. Let us hope so, for the future of the sport is at stake.

BUY A '57 NOW?

continued from page 34

well-maintained, current-year car. If you fall in this category you should probably trade your car in at least every three years, but then this statement, of course, is merely a guidepost for your consideration.

A much smaller percentage of new-car buyers trade in their car for *social reasons*. "Keeping up with the Joneses," though becoming seemingly less important in the lives of most Americans, still has its following, and the ritualistic pastime of becoming absorbed in the new models is certainly national in scope, whether a new car is purchased right away or not.

Of course, automobiles do wear out, so there is still another group of buyers who trade because their means of transportation has reached the stage of mechanical fatigue. But, as a credit to the manufacturers of today's cars, the life expectancy of all makes of cars is continually being stretched to longer spans and more mileage per car. So, conceivably, your seven-year-old car may last you another three to five years with normal care. It's already depreciated to about six per cent of the original F.O.B. price, so you have next to nothing to lose on valuation. It all depends on whether or not you'll be satisfied with the styling and lack of prestige of an older model car.

What about the *economy* angle involved with this problem of trading in your car? Here again, there's no scientific formula that can be given because of the variables to be considered in each individual case. Yet, there is one factor that you can rely upon to help you decide on your choice of make, if you're really concerned about getting the most out of your automobile investment. The resale *valuation* of an automobile is in direct proportion to its popularity with the public. This has been proven by a study of the used car prices on various makes of cars over the years.

For instance, it is well known that the Cadillac is considered a good investment, not because its original price is high, but because the resale value of Cadillacs remains high over a longer period of time. Thus, a three- or four-year-old Cadillac can command a higher price than another car in a similar price range.

So, if you want to own a car that's worth more in the future, *buy one that has wide public acceptance*. To prove this to yourself, watch the resale valuation of '57 Fords in the months to come. You can get this information from the books mentioned previously, or by keeping tab on prices through the classified ads.

Another thing, new car prices have steadily risen every year since the end of the war. According to all current reports, this rise is not going to stop with the '58 models. Again, if you're concerned with cash difference and have need for a *new* car rather than one of the latest, which of course would be a '58 model, your best bet would be to buy a 1957 model now.

FLYING SAUCERS

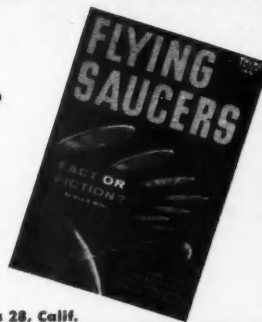
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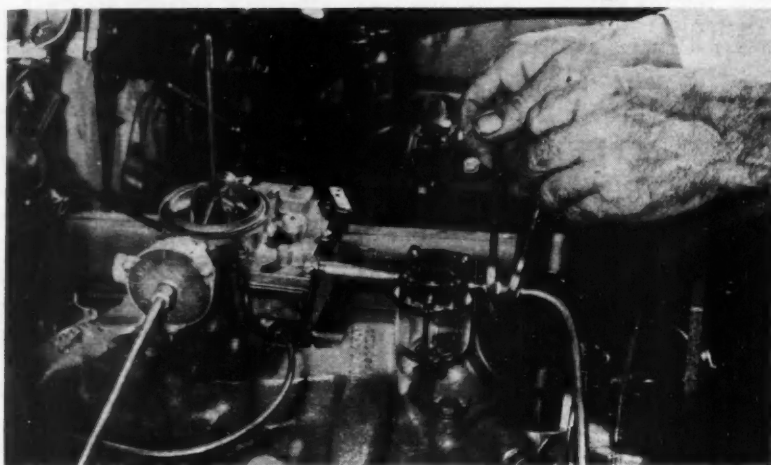
Fuel for Thought

RECENTLY A CAR DEALER discovered a late model, high-powered car abandoned in front of his dealership, with this note on the windshield: "Keep it. You can't make it run, so I don't want it." Another dealer serviced a car five times, with the customer getting madder each time, and still it kept on flooding, stalling and dying.

MOTOR TREND has learned from car dealers, garages and tuneup shops that one of the biggest service headaches today is in the fuel system of late model automobiles. One tune-up shop went so far as to say that 99 out of every 100 jobs brought in on late model cars are traceable to fuel systems and their troubles.

How did all this happen? It's one of those things illustrating one of Detroit's famous backyard axioms that "there's no great gain without some small loss." In this case it all came about when the great horsepower race started some six years ago. The horsepower/fuel pressure chart shows what happened. As horsepower went skyrocketing upward, fuel pressures had to go up with them. Engines that formerly were satisfied by two pounds per square inch of fuel pressure suddenly needed much more fuel, and the only way to get it was jump up pump pressures. Fuel pressures were increased to four, five, even as much as eight pounds per square inch, to satisfy the fuel requirements of higher horsepower engines.

On the test stands this was fine. Everything was working according to plan. But as more and more high-horsepower cars hit the road, more and more dealers wailed loudly to Detroit that fuel system complaints were taking half and more of their service department time. Worst of all, this was a tough problem to fix, and service customers kept coming



INSTALLATION of a Mileage Minder is made between fuel pump and carb.

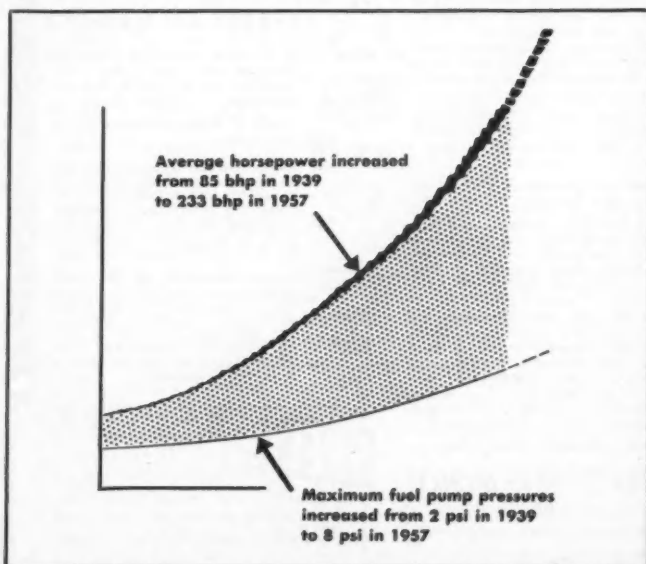
back again and again, complaining of poor gas mileage, flooding, vapor locks, stop sign stalling, gasoline odors in the car, carburetor wear, rough idling and poor acceleration.

Here's what had happened. The same type of fuel pumps were used as always, except that they were asked to deliver much more gasoline at higher pressures. Fuel pumps send gasoline to the carburetor with a cam action, alternating between thrust and vacuum, so that the carburetor needle and seat have to be constantly fluttering open and shut to accept and regulate the gasoline flow into the float bowl. As engineers increased fuel pressures the thrusting pulsations from the fuel pump increased tremendously, forcing the gasoline to the carburetor at pressures which

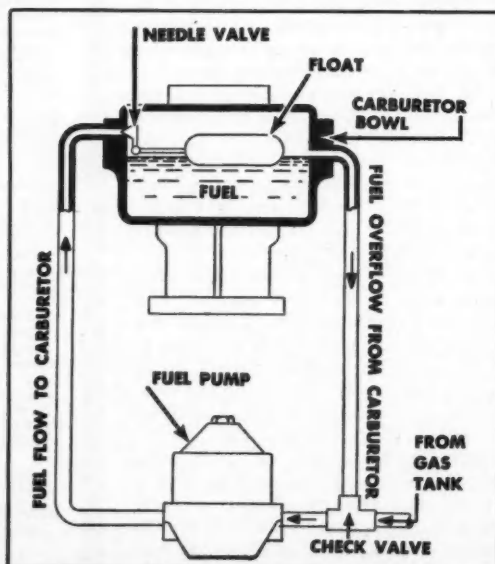
were like hammer blows. This in turn caused overriding of the carburetor float level, flooding, vapor lock, rough acceleration and all the other troubles of too much gasoline at too high pressures. Yet all that horsepower has to be fed, some way.

Other problems came along with higher pressures. As gasoline octanes were increased for higher compression motors, impurities, iron oxides and other metal particles caused by rusting and metal chips caused further troubles. These tiny metal particles actually become magnetic and cling to the first hardened steel they encounter, which is the carburetor needle, with consequent clogging and even further flooding and performance difficulties.

continued on page 67



FUEL REQUIREMENTS of more powerful engines have been met by increased fuel pump pressures with attendant pulsation troubles.



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Have you applied previously? _____ if addition to existing account, show number _____			
CHECK ONE ONLY			
COMPANY ACCOUNT Bill to office address <input type="checkbox"/>		PERSONAL ACCOUNT Bill to office address <input type="checkbox"/>	
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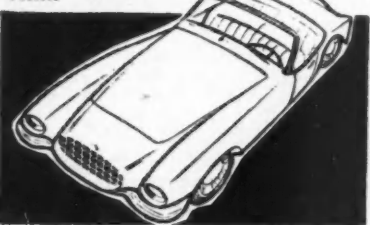
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questions from readers

Q. DODGE DOPE. You never seem to write anything about the early Dodge. There is a dearth of material on this company and the Dodge Brothers. Even though the Dodge is not a classic, please give some general information regarding it. *George J. Frank, Elizabeth, N. J.*

A. When the Dodge was built by the two Dodge Brothers it was one of the best cars built, though not particularly interesting in appearance. It featured many mechanical innovations: the combination 12-volt starter and generator was chain driven, absolutely silent in operation, and because of the 12-volt system these cars would start readily in -20°F weather. The most interesting cars from a special interest standpoint were the full-leather-interior two-passenger coupes.

The cars were dependable and were marketed at reasonable prices. No guarantee was given to the purchaser; the sales pitch was, "We have made the best car we can make at this price and if anything goes wrong you pay for fixing it." The dealer organization was closely knit and responsible for the success of the marque. Each dealer had a given territory and one dealer could not sell a car to a purchaser living in the territory of another dealer. Also, if a dealer did not make money, he had to sell out to another dealer who could make a profit with the franchise.

The Dodge Brothers were perfectionists. The word "Brothers" was always spelled out on the car; the abbreviation was never used. At one time during the history of the factory a brick chimney was erected and the word "Brothers" was abbreviated. The two owners caused the chimney to be demolished and rebuilt with the word spelled out in full.

The two owners died as a result of drinking poisoned liquor at an automobile show (during the prohibition days). After their demise the company was taken over by banking interests and ultimately sold into the Chrysler dynasty.

Q. TIME OUT. My '55 Chevy acts like it's out of time, but a check of the points, wiring and timing shows negative results. What could be wrong? *Bob Wesley, Huntsville, Ala.*

A. We suspect microscopic cracks in the distributor cap, which will cause this trouble. Try a new one.

Q. EXTERIOR DECORATING PROBLEM. I live in the sunshine state and wonder what color is supposed to hold up best in the hot sun. *Jim Bacus, Fort Lauderdale, Fla.*
A. It is generally conceded that metallic gray resists the ultraviolet rays best. Chemical advances in recent years, however, have produced fade and oxidation resistant paints in practically every color. Red is still the color most likely to fade.

Q. BREAKING IN A FRANKLIN. The

on engines, performance,
new and used cars,
classics and customs . . .

air-cooled engine of our Franklin is at present being overhauled. How should the car be broken in? What other precautions should be taken? What type of gasoline should be used? *Moody D. Wharan, Jr., Arlington, Va.*
A. Assuming the engine is entirely overhauled to original specifications, a good grade Eastern oil (20 weight) should be used for the first 500 miles. After 500 miles the oil should be drained while the engine is hot and 30 weight oil put into the engine. For best results do not use one of the modern detergent oils. The car should be driven at slow speeds (25 to 30 miles per hour) for the first 1000 miles, with occasional bursts of speed to 50 or 60 miles per hour. The car will run well on "regular" gasoline, but do not use very cheap white gasoline.

Q. MORE PERFORMANCE. Will headers, dual pipes and triple carbs increase the performance of my '55 Studebaker Commander? *Jack Karch, Dayton, Ohio.*
A. Yes—you will receive better performance, but we would suggest two four-barrel carbs for more dependable performance.

Q. UNDER COVER. I own a '57 Plymouth which has transparent seat covers. I notice they are mildeewing under these covers. What causes this? *Viola Teesdale, Santa Monica, Calif.*

A. Transparent covers prevent natural air circulation within the confines of the upholstery. We suggest removing the covers and airing the seats in the sun. Don't replace the covers until you have a hot, dry day.

Q. VIBRATOR. My '56 Ford has developed a vibration between 38-42 mph and 75-95 mph. My dealer has replaced the universal joints and driveshaft but this has done no good. We also balanced the tires when the car was new. What do you suggest? *Gary L. Vesey, Chicago, Ill.*

A. We still suspect the tires. You may have lost a balance weight or (and this is rather common) one or more tires have developed a bulge making them out of round.

Q. LUCKY LUCIANO'S? On page 64 of your August issue, in my opinion, Mr. Gottlieb is in error. The car illustrated was built for and driven by Tony Lucey, who at that time ran Lucey's, a fine restaurant in Los Angeles. Mr. Lucey recently died here in Las Vegas. He was associated with the Golden Nugget. If I am in error, please advise. *Robert S. Coffin, Las Vegas, Nev.*

A. Mr. Gottlieb was contacted by William Ketcham, presently residing in Pico, Calif. Mr. Ketcham stated that he operated the American Auto Body Co. from 1930 through 1939 and that his organization built the car in question for Lucky Luciano. Mr. Ketcham gives full credit to Luciano as the designer of the car; it was built to Luciano's specifica-

tions and drawings, which were changed on numerous occasions during construction. As an example, Mr. Ketcham stated that he made five different sets of front fenders before Luciano was satisfied with the overall appearance.

Q. SWAPPING. I want to install a '57 Olds V8 in my '53 Olds convertible. Will this work? Roland Amiraunt, Melrose, Mass.

A. Yes, but use a late Hydra-Matic transmission too.

Q. LOWER HORSEPOWER. Am I right in claiming the use of electrical accessories will lower usable horsepower and thereby increase fuel consumption? Warren L. Lintz, San Diego, Calif.

A. Yes. Electrical drain on the battery produces more work for the generator. This takes more torque to turn it, which must be supplied by the engine. The amount is small, so don't worry about it unless you are in a maximum mileage contest.

Q. LARGEST ENGINES. In your August 1957 issue you reply to a reader's question as to the largest American automobile engines. I believe you are in error, and I am of the opinion that the distinction belongs to the Pierce-Arrow last made some time around 1916 to 1917. Thomas Fortson, Dallas, Tex.

A. Confusion on this question and answer resulted from our attempt to condense the original question. Inadvertently, we left out of the question the words, "American Classic." Many antique automobiles had engines with greater displacement than those listed. Locomobile, Winton and Pierce-Arrow made models displacing 524.8 cubic inches. F.I.A.T. (it was considered an American car), Simplex and McFarlan displaced 557.0, 563.7 and 572.5 cubic inches, respectively. An early Pierce-Arrow displaced 824.7, while the antique Oldsmobile Limited totalled 706 cubic inches. In order to avoid another rash of letters, the original Oldsmobile Limited was 505 cubic inches, while the 1911 and 1912 models displaced 706.

Q. FROM FOUR TO SIX. Can I replace my '52 four-cylinder Henry J engine with a six-cylinder '53 engine? J. Esmerado, Avenel, N. J.

A. Yes. This has been done several times.

Q. SWING AND SWAY. I own a '56 Plymouth station wagon which sways and fishtails on curves. Can you suggest a remedy? William Baldauf, Albany, N.Y.

A. This has come up before. Try heavy duty shocks. If that doesn't cure it, add another leaf to the springs directly under the longest leaf.

This new department is open to all types of questions from our readers. We welcome not only technical questions, but queries on new cars, old cars, classics, performance, and what-have-you? It will be impossible to answer any letters personally; we will answer as many questions as possible only in this column.

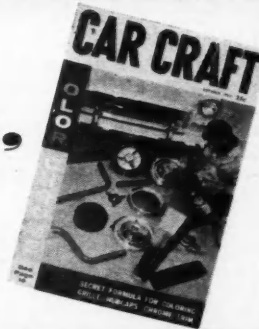


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Some engineers believe Britain could be first with a production GT car

continued from page 30

Given supplies of 95- to 100-octane fuel, British piston engines will soon be running at compression ratios of 10 to 1. The gas turbine engineer has to assume that by the time his power unit is ready for production, it will have to compete against piston engines far more efficient than those now in use. Spencer King, engineer in charge of gas turbine development at Rover, told me some time ago, "If we could combine in one unit components giving the efficiency now obtained separately on test rigs, we should already have a strong competitor to the piston engine." In the last few months the security curtain has again descended on Rover activities and may well be the prelude to another big step forward.

Rover and Austin are concentrating on the development of the static secondary surface heat exchanger. Maximum theoretical efficiency for this type is only about 70 per cent. In the U.S.A. good results have been reported in rig tests of rotary recuperators, but it is difficult to seal the moving faces. The static type is thought to offer better possibilities for early development into a practical salable unit. At present the heat exchanger is very heavy; the Rover unit weighs 110 pounds and the Austin probably not less. The material used is stainless steel, which is costly, and materials alone might cost \$180.

However, the weight is not an insuperable disadvantage, because the rest of the power unit is so light. For example, the whole rear end assembly on the Rover T-3, comprising compressor, heat exchanger, combustion chamber, two turbines, accessories, reduction gear, differential and disc brakes, weighs about 430 pounds. This compares favorably with the weight of a 110-hp piston engine, with automatic transmission and back axle. At present there is a further item of about 40 pounds for the asbestos heat insulation surrounding the engine compartment, which should be reduced as engine thermal efficiency is improved.

Before embarking on large-scale production it would be an advantage to gain extensive operating experience with a number of cars in varied operating conditions. Some people in the industry think this might be done by selling a small series of cars to selected customers, such as garage proprietors and experienced competition drivers, preferably in Britain and Western Europe. Replacement parts could be supplied by the factory within a few hours, and might be installed by factory mechanics until local mechanics had been trained in turbine service techniques.

At Rover, a life of 1000 hours between overhauls is already regarded as assured. This would mean 35-50,000 miles, according to operating speeds. The limiting factor is the build-up of deposits of oil and dirt on the compressor blades, which rapidly reduces efficiency. In current experimental units this entails a major dismantling operation, comparable to decarbonizing early piston engines which had non-detachable cylinder heads. An engine designed for production would include provision for easy access to the compressor, and cleaning would then be a much simpler and quicker operation than decarbonizing even a modern piston engine.

On their T-3 sports coupe, Rover is developing four-wheel drive and new types of independent suspension. Four-wheel drive is regarded as a valuable safety feature, reducing the possibility of wheelspin and skidding when the turbine develops full torque. This is important, as the time lag while the compressor accelerates makes it difficult for the driver to exercise sensitive control through the accelerator. Rover engineers also report that their four-wheel drive system is a definite asset to fast cornering. Both front and rear suspensions use the driveshaft as a suspension member. At front it forms one arm of the lower wishbone, working with a coil spring suspension unit. At the rear, the driveshafts locate the de Dion axle with the aid of Watt linkages at the hubs. This causes slight variations of track with

wheel deflection, which are accommodated by a sliding joint in the de Dion axle tube.

At the Austin works in Longbridge, the gas turbine section of the research department occupies an important area, with sound-proofed remote-control dynamometer for the testing of complete power units, and separate rigs for tests on compressors, heat exchangers and other components. The 120-hp Sheerline sedan which has been on the road since 1954 has now faded into the background. Its place is being taken by a new car designed from the start for turbine propulsion. A photograph of a scale model was released some time ago, showing a sedan of rather flamboyant lines, apparently propelled by a turbine mounted at the rear, but Sir Leonard Lord took care that the picture released did not show the model of the car which is actually being made.

The original Austin turbine unit used a two-stage compressor driven at 22,000 rpm by a three-stage turbine, followed by a single-stage free power turbine. It had a single combustion chamber and a cross-flow heat exchanger. Its complexity caused some surprise but brings certain solid advantages. The compressor has a good adiabatic efficiency at the low speeds which are important for automobile operation. The low gas velocities permit use of small diameter rotors, which reduces disc and blade stresses. A smaller speed step-down is required in the gearbox. Use of four turbine stages allows blades to be of constant section without twist. They vary only in length from one stage to another, so production is greatly simplified. Subdivision of work also cuts down root stresses, so the Austin blades were simply drilled, and held in grooves on the rotor discs by pins peened over at the ends. This is a much cheaper method than using the conventional fir tree root, or carving blades out of a solid disc. Finally, this unit gave maximum thermal efficiency at part load, its lowest specific fuel consumption corresponding to that of the car's cruising speed. Acceleration was better than that of single-stage units, owing to the low rotor speed range.

Several new projects are now being handled in the Austin turbine division, the smallest being a tiny unit which gives 30 bhp at 56,000 rpm.

The ability of the gas turbine to use a wide variety of cheap fuels is unlikely to bring any great benefit to car owners. Fuel must be readily available at the roadside, so there is good reason for using something already on sale at filling stations. Moreover, it is assumed that if any very cheap fuel were used, taxes would soon be imposed to cancel out the advantage. Rover and Austin are using diesel oil for their turbines. The sulphur content produces small quantities of sulphuric acid in the exhaust, which may attack the joints of the heat exchanger, but this is not a serious problem. Progress in heat exchanger design should soon enable the height of the rear deck on the Rover T-3 coupe to be reduced, which would make it a really good-looking car by any standards.

This is by no means the whole British car turbine story. Standard is now producing a small industrial turbine weighing 350 pounds, which develops 250 bhp at 24,000 rpm. It is extremely simple, with centrifugal compressor and centripetal inward-flow turbine back-to-back on a common shaft. As a single-shaft unit with no free power turbine, it lacks the flexibility for a vehicle power unit, but a motor vehicle turbine is now being developed in the same department.

Associated British Engineering is building up a big business in industrial and marine free piston generators, of the Pescara type, which would provide a valuable background of experience for the design of car-type free piston units. And in the field of pure speed, there is the new car which Donald Campbell is building, with Bristol Proteus turbine, to attack the late John Cobb's world land speed record.

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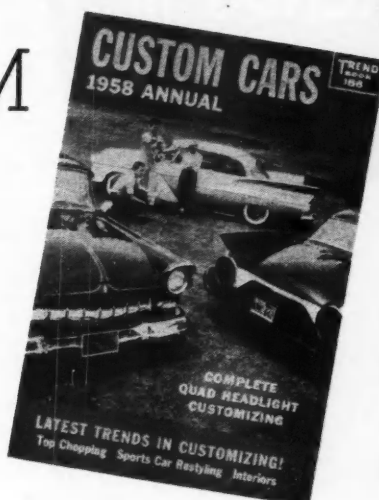
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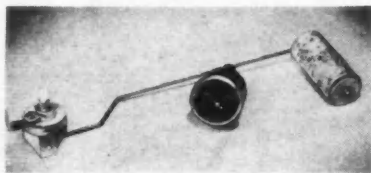


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TRENDS in New Products

VOLKSWAGEN OWNERS will be interested in a new and compact all-electric gas-level indicator manufactured by MotoMeter of Germany. The 1 $\frac{1}{16}$ -inch-diameter instrument fits neatly into the dash panel, matches the



speedometer in appearance, and features non-glare illumination. The tank unit is extremely simple to install, being inserted through the filler neck and clamped in place. The unit fits all 1956 and later VW's and is available from Fisher Products, 21-21 44th Drive, Long Island City 1, N.Y. for \$14.95.

TO HELP COMBAT the unsightly and expensive litter problem on our streets and highways, Chevrolet is introducing a substitute for the usual paper sack that most civic-minded citizens use in their cars. The new



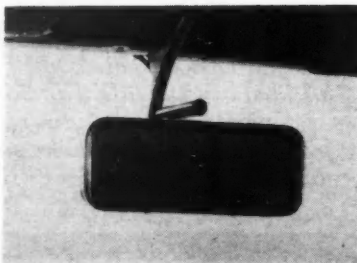
container is a purse-style plastic bag which fits beneath the glove compartment and slips off easily for quick disposal of the contents. The price has not yet been announced.

RECENT DEVELOPMENTS have given rayon a further lead over nylon in the European tire market, according to Dr. John Meynen, executive vice president of Algemeene Kunstzijde, N. V. (A.K.U.), international manufacturers of man-made fibers. These factors are the introduction of an improved rayon tire yarn and the growing use of steel wire in tires. The recent development of rayon yarn, which is 40 per cent stronger and has 60 per cent increase in fatigue resistance, has made possible a lighter and stronger tire without the use of more expensive nylon, Dr. Meynen said. Steel wire for tire construction, although still largely experimental in this country, is becoming widely used in Europe. It is claimed that the use of wire cord results

in excellent tread wear, improves non-skid characteristics, and may be used as a breaker strip in conjunction with a rayon cord carcass.

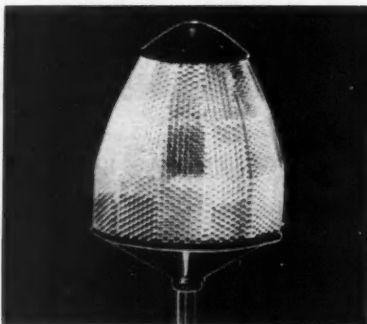
NEW AIR-SUSPENSION has been developed by the Dunlop Rubber Company called the Pneuride. Outstanding feature of this system is that the resistance to movement of the air bellows increases the more they are deflected, and the vehicle remains level regardless of load. This is accomplished by means of a "leveling valve" which automatically adjusts the air pressure in the bellows as the load is increased or decreased. It is claimed that the system results in an equally comfortable ride whether vehicle is empty or fully loaded, and that there is a reduction in road noise transmitted to the vehicle from the wheels.

A REAR VIEW MIRROR which is automatically adjusted by an electronic device to prevent drivers from being blinded by following headlights is a new contribution to motoring safety. Called the Mirrotron, this accessory is activated by a miniature photocell which



picks up light from headlights and operates the mirror at a point where glare would be blinding. The driver can adjust the point at which the mirror switches from the normal to dim position by a small dashboard control. Selling for about \$28.50, the Mirrotron is manufactured by Instrument Research Co., 22 Anselm Terrace, Brighton 35, Mass.

SUBURBANITES with dark driveways will be interested in the new Spark-l-lite driveway reflector. This device is a 360-degree



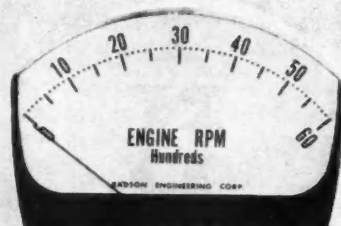
Plexiglas reflector, so designed that it will pick up light from your headlights and redistribute the light over the entire driveway area regardless of the angle at which it is approached. Full information can be obtained from Dynamic Specialties Corporation, P. O. Box 184, Birmingham, Mich.

LOUVERED SHADES which screen out direct rays of the sun during the hottest part of the day are a recent aid to torrid weather comfort.

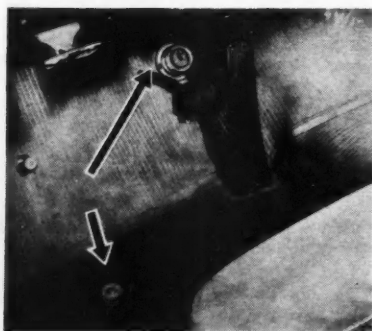


These shades also insure privacy when sleeping in station wagons as insiders can see out without outsiders seeing in. The shades are constructed of aluminum and have adjustable snaps. They do not interfere with window operation. Manufactured by Johnson Automotive Specialties, 3449 Ocean View Blvd., Glendale 8, Calif., they sell for \$9.95 per pair, plus tax.

A TRANSISTOR TACHOMETER is now available which fits all 12-volt, eight-cylinder cars. This instrument is a single unit which



requires no transmitter and it is only necessary to connect it directly to the ignition switch and coil. The range is 0 to 6000 rpm. Manufactured by the Radson Engineering Corporation, Macon, Ill., it sells for \$39.95.



LONG DISTANCE DRIVING at steady speeds can tire the right foot and leg from the constant pressure required on the gas pedal. The Steadi-Drive accelerator can help this by holding the pedal in any chosen pre-set position. It consists mainly of a switch convenient to the left foot on the floorboard. By depressing this switch, the right foot may be removed from the gas pedal and the car will stay at the same throttle setting until the left foot is lifted from the switch. The price is \$8.95 and the device is manufactured by Walter B. Schnur (Dept. C-13), 337 Timson Place, New York 55.

Fuel for Thought

continued from page 60

What's to be done? Reports indicate that there's lots of frantic engineering going on behind closed doors in Detroit. Many things have been tried. Expansible neoprene lines have been tested on production models, in an attempt to give some relief from pulsations. Many different types of filters are making their appearance, some as equipment and others as accessories. The flooding problem has become so acute that one inventor, also an automotive maintenance man, has developed and patented a device for feeding back the excess gasoline from the carburetor bowl (see illustration on page 60).

Many pressure regulators have been tried, but these have the common fault of reducing pressures to a fixed, predetermined level, mostly at two pounds per square inch. This does give some relief at lower speeds but at the same time it creates new problems because it actually will starve a high horsepower engine at high speeds or high acceleration.

The answer is to dampen the pulsations and smooth out the flow of gasoline to the carburetor, without reducing factory recommended fuel pressures. A company in San Francisco has adapted the principle of the famous old orchard pump, to a patented device which seems to hold good promise for correcting the condition on existing cars, and is undergoing crash engineering tests in Detroit now for possible installation as standard equipment.

The Mileage Minder employs the simple principle of the spring-supported diaphragm, with the most modern developments in materials and design. It is installed between the fuel pump and the carburetor, either at the fuel pump or the carburetor. Gasoline is accepted from the fuel pump in alternating, hammering surges, and in the Mileage Minder the action of the dual neoprene diaphragm stores the thrusts from the fuel pump, and forwards the gasoline to the carburetor in a steady even flow. This diaphragm action does not reduce the flow of gasoline, it merely smooths it out, so that the carburetor receives its normal fuel requirements without the hammering pulsating action which has been the root of so much trouble.

In addition, a porous bronze filter has been included in the Mileage Minder, ahead of the pulsation chamber, so that the pulsating action of the fuel pump actually gives this filter a self-cleansing, anti-clogging action, licking the problems of iron oxides and other gasoline impurities.

The many car dealers and service shops that have tried Mileage Minder are unanimously favorable in their reports. It appears that this device has struck at the root of the trouble, and in smoothing out the flow of gasoline has eliminated the excessive stream of customer complaints of gas waste and poor performance. It is estimated that Detroit has produced at least 15 million vehicles that are potential or actual fuel system headaches, and if your car is in that class, perhaps Mileage Minder has the answer for you. Or maybe you'll find it on next year's cars.

—An MT Research Report

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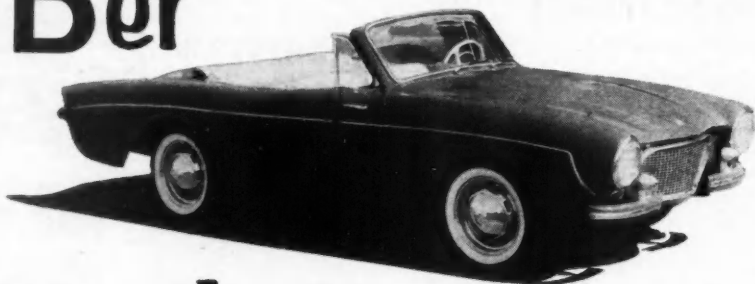
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Story and Photos by William Carroll



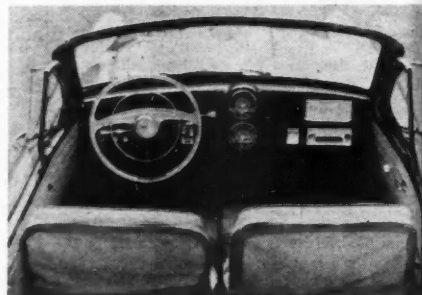
STARTLING CHANGE from sedan to sports car involves clever customizing.

PRODUCTION of a custom-line of sports cars based on the DKW (see Sept. '57 MT) has begun at Flintridge Motors Mfg. Corp. of California. The Fiberglas 4/5-seat sports car will retail for \$3195, F.O.B. Los Angeles, with a full guarantee such as you would get with your standard DKW sedan. In addition, claims Henri A. Lindsey, president of Flintridge Motors, the combination of Fiberglas exterior and metal underbody results in a sturdy and rattle-free assembly of exceptionally light weight (actually 350 pounds lighter than the standard DKW).

Though Flintridge Motors is the manufacturer, actual production of the sports car takes place at the Woodill Fiber Glass Body Corp. in Santa Ana, Calif.

When new DKW sedans are received at the Woodill factory, all interior upholstery is removed, the top is cut off, doors, fenders, and instruments are taken off. The cowl section is moved aft six inches and lowered four, while a new metal frame is installed to retain stiffness of the original assembly. Then Fiber-

glas shells are attached to the car, creating an envelope body. Original DKW doors are altered slightly, and covered with Fiberglas. The completed sports car has roll-up windows.



The new interior is color-keyed to exterior finishes. Available also is a removable Fiberglas hardtop weighing less than 40 pounds.

Production of the sports car started July 15th and is expected to reach 200 units monthly by October 1st.

Railway Locomotive Builder Turns to Making Scooters

After manufacturing locomotives for nearly 100 years, Hunslet Engine Co. Ltd. (Leeds, England) has decided to build a lighter vehicle. Here is the prototype of their Scootacar, an enclosed three-wheeled scooter with handlebar steering. Bodywork is in plastic; vehicle seats two adults and a child; and engine is a 12-cubic-inch Villiers two-stroke, driving through a four-speed gearbox. The makers claim a cruising speed of 45 mph and a fuel consumption of 80 mpg at 30 mph.

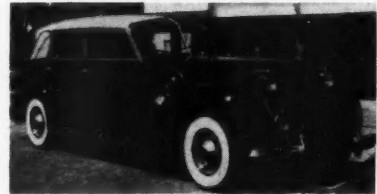


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'28 RUHR built on '28 Studebaker chassis. Has '28 Stude Straight 8 engine, 6-speed transmission. Body is 3-position Mercedes-Benz type conv. Good. H. D. Harshorn, 117 Ponce De Leon Ave., Atlanta, Ga.
'39 PACKARD 12 Brunn landaulet, completely restored. New paint, new chrome, new uph.; 20,000



mi. \$2500. H. P. Davolk, 2716 Barcelona Dr., Fort Lauderdale, Fla.
'37 CORD sed. Complete & orig.; 6 wheels. Radiator restored; rest of car restorable. \$750 or best offer. Possible extra perfect parts body available for \$100. Ed Bowerman, 5815 Bowcroft St., Los Angeles 16, Phone TEXAS 0-3981.
ELDORADO KIT—complete, like new. Air cleaners, carbs, linkage, gas lines, manifold. Removed from '57 Cad, mileage 1200. Owner did not like power. \$200. P. A. Wright, Box 52B, Glen Allen, Va.
'48 JAGUAR Mark IV drophead cpe. Immaculate; new top, paint; complete engine o'haul. A true classic



in every respect. Pix & history available. \$1950. E. K. Miller, 919 S. Division, Ann Arbor, Mich. Phone NOrmandy 3-1408.
'32 PACKARD conv. rdstr. Rumbleseat, sidemounts, 2-way top. Body and mech. in perf. cond. New orlon top, paint, chrome. Best offer. Matt J. Daleo, 151 N. Delaplaine Rd., Riverside, Ill. Phone Riverside 7-3901.
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'36 CORD 810 sed. completely restored to showroom cond. Over \$2000 invested; must see to appreciate. Sell for \$1200. Paul Essian, 23 Saddle Rock Rd., Valley Stream, N.Y. Phone VA 3-4686.
'57 FACEL-VEGA in mint cond. All-white, with black leather. 6000 mi. \$6000. John Guedel, 8321 Beverly Blvd., Los Angeles 48. Phone WEBster 5-6291.

continued on page 71

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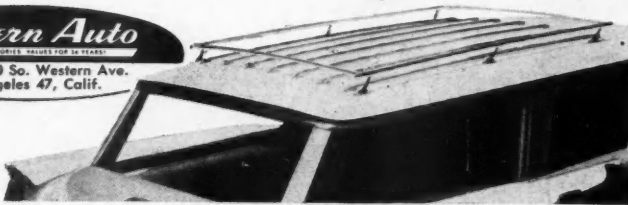
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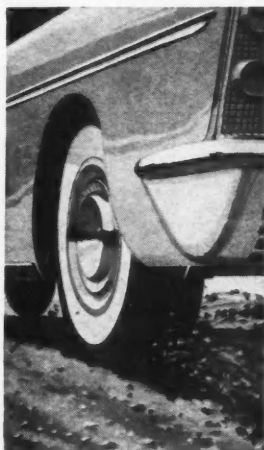
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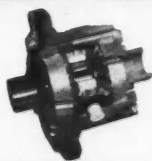
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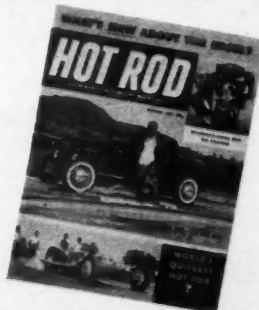
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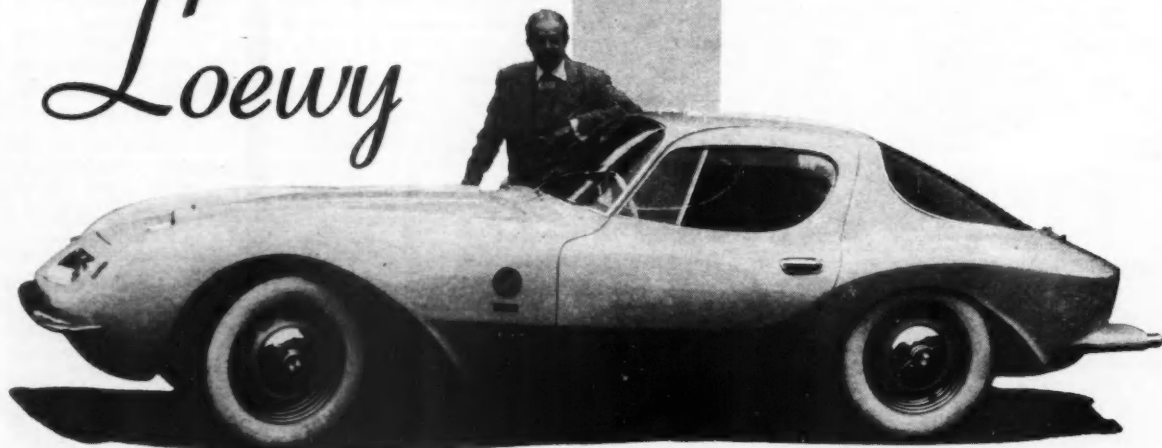
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'48 ALFA-ROMEO Super Sport cpe. 6C 2500,
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Free-wheeling 2-wheel drive with Warn Hubs means big savings in gear, engine, tire wear, gas, plus more pep, performance, power in high and easier steering. And now, with Warn Lock-O-matics, you have economical, drag-free 2-w.d. or 4-w.d. automatically, as you shift! Ask your local 4-w.d. dealer to install Warn Lock-O-matic or Locking Hubs today. Models for all 4-w.d.s to 1½ tons. Fully guaranteed. Write for free literature.


OVER 100,000 WARN HUBS NOW IN USE

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WELD
BRAZE
CUT
SOLDER

4 WAY
ONLY **\$14.75**
per hour

WELDER



Acclaimed by thousands of stock, hot rod and custom enthusiasts as the welder of 1001 uses. Easily operated from properly wired 110 V. AC or DC line. Ideal gift with a life-long use. Order today on 10-day money back guarantee. Literature on large equipment on request.

FOUR-WAY WELDER COMPANY
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Auto-top lift removes & stores your nardtop. Now \$9.95 p.d. Instrument panel, padded storage pocket, many Bird items. Write for illus. brochures. MT-10.

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Box 151, Pasadena, Calif.

HEDMAN HEDDERS

FORD-MERCUY CHEVROLET
1955-57 Models and '57 PLYMOUTH
Free Information
See your dealer or write direct:

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11039-49 W. Washington Blvd., Culver City 8, Calif.

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NEVER BEFORE has the opportunity been so good for the properly trained mechanic and technician to step into BIG PAY POSITIONS with rapid advancement and future security virtually assured.

YOUR SUCCESS depends on the quality of training you receive... and the reputation of the school you attend.

YOUR GUARANTEE we are giving the best in mechanical and technical training is proved by the fact... High pay jobs in industry, and earnings in the Armed Forces now waiting for our graduates.

RESIDENT SHOP TRAINING is easier and costs less than you may think! We provide you with housing and part-time jobs while in school, plus free nation-wide placement service for graduates.

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1623 Grand, St. Louis 4, Mo.

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firm. H. Walker, Box 1109, Clarksburg, W. Va.
'37 CHRYSLER Airflow. O.d., tachometer, 4-way seat, clock, good heater. Like new. Instruction manual included. \$500 or best offer. Robert R. Bonar, Murfreesville, W. Va.
'55 AUBURN 653. Engine just o'hailed with factory parts. Body needs work. Was asking \$500, but



need money for college. Best offer over \$350. Will deliver for expenses. Johnny Rainbolt, 620 N. College St., Cordell, Okla.
'54 ASTON-MARTIN DB2-4 3-liter cpe. Haze Blue. exc. cond. Asking \$3550. A. Hugh Clarkson, Mill Rd., Doylestown SR 2, Pa. Phone Buckingham 5881 after 7 P.M.

'31 PONTIAC 2-dr. sed. in good orig. cond. Complete with owner's manual. \$250. Robert E. Martin, 883 W. Main St., Waynesboro, Pa. Phone 1631-M.
'40 PACKARD deluxe 6-cyl. 4-dr. sed. R & h, good paint, tires. One owner. 39,920 actual mi. on orig. engine. Good cond. Best offer. Mrs. Katherine Liba, 8257 Olympia, Detroit 13, Mich.

'32 AUBURN 810 8-cyl. cpe. Good rubber, perfect body—no dents. O.d.; 37,800 actual mi. Highest bid over \$350. Merle Boram, 421 W. High St., Pendleton, Ind.

'37 CORD supercharged 812 Beverly. Completely orig., showroom cond.—new chrome, hand-rubbed black lacquer. Engine completely rebuilt; new outer "U" joints. Make cash offer. H. W. Haltermann, D.D.S., Box 332, Grove, Okla. Phone SUnset 6-3374.

'29 AUSTIN Big 4 heavy 4-dr. tourer. Rt-hand drive. Mechanically perf., castor seat, folding windshield. Full details & pix to genuine prospects. \$450. Earl D. Potter, 8811 W. 102nd St., Rt. 4, Oak Lawn, Ill. Phone GArden 2-3552.

'23 BUICK 4-cyl. touring car. Exc. cond.; looks and runs like new. 4 extra tires. \$375. J. L. Stubblefield,

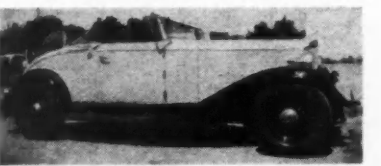


1400 W. Woodard St., Denison, Tex.
'33 PLYMOUTH conv. cpe. Good tires, wire wheels & continental spare. Rumbleseat, folding windshield. Poor top. In daily use. Best offer over \$150. Richard Williams, 475 Webster St., Needham Heights 94, Mass. Phone NE 3-4817.

'32 PACKARD Big 8 sport phaeton. Orig. 2-tone paint; double cowl. Exc. cond. in every respect. \$2000. Colored photo if interested. Merton L. Vining, 145 Lisbon St., Lewiston, Me.

'36 CORD 810 4-dr. Hollywood sed. Mechanically reconditioned; in full prime, ready for color. Needs uph. & tires. Best offer. Manuel Kolb, Elk Grove, Calif. Phone MU 5-4407.

'32 PACKARD 8 Model 900 conv. sport cpe. Orig. owner, perf. mech. cond. Paint & tires perf.; still in



use. \$2000. Charles Blaser, 984 Fulton St., Farmingdale, Long Island, N.Y.

SPORTS CAR SKETCHES—8 x 10. Ferrari, 300-SL, D-Jag, Jag XK-140, Austin-Healey 100-S, Triumph TR-5, Porsche, VW, MG—TC-D-F-A. Complete set of 12 prints \$5, any 4 \$2. No C.O.D.'s. A. E. Wood, 8310 Hood Dr., Richmond 27, Va.

'36 CADILLAC V8 Fleetwood conv. sed. Body rough; has been run. Good for someone who will restore or use as parts car. \$75. Contact A. or G. Stein, 426 W. 1st St., Elmira, N.Y. Phone 3-9360.

SELL OR SWAP

'40 LINCOLN CONTINENTAL cabriolet in showroom cond. Off-white with red leather uph. Cadillac

250-hp race-type V8 engine in exc. cond. Sell or swap for Chrysler product station wagon or Chrysler Imperial sed. in exc. cond. A. G. Subr, 9747 Maplewood, Belflower, Calif.
'28 FRANKLIN victoria brougham. Registered & running. \$1000 firm, or swap square for '31 Ford victoria if exc. Phone person to person or write, Justin Hartley, 13 Main St., Colchester, Conn.

'56 CALIFORNIA CUSTOM, with Olds 98 engine. 7000 mi. Fabulous exterior coachwork & interior finishing—striped by California expert. Cost \$8500. Sell for \$3495 or trade for American, foreign. Cal H. Hunter, 144 W. Main, Galesburg, Ill. Phone 4105.

'52 JAGUAR XK-120 sports rdstr. Body wrecked; mechanically okay. One owner, 3700 actual mi. \$1100 or offer. Will consider trade on good MG. Don Sandell, Rt. 1, Rock City, Ill. Phone Davis, Ill. 3510.

'34 LINCOLN KB sed. Can be restored. Sell for parts for \$250, or trade. Car located at 1910 Midland Rd., Saginaw, Mich. Contact owner, M. Wiederhold, at 6125 Telegraph Rd., Toledo, Ohio. Phone GR 9-3571.

'48 TUCKER—beautifully restored. One of America's most unusual cars. Sell or trade for antique, classic,



or late Rolls or Mercedes-Benz 300. Bob Lingo, P.O. Box 595, Norwalk, Calif.

'37 CORD 812 supercharged conv. cpe. 85% restored—5 new ww's, new chrome, power steering, top, uph., & "U" joints. Over \$4000 invested. Accept reasonable offer or trade for good sports car. Address inquiries to 130 S. Valley St., Burbank, Calif. Phone THornwall 8-4123.

SWAP

\$3000 HAM STATION for showroom hot rod or mint Lincoln Continental. Have Johnson Viking Kilowatt transmitter, Collins 75A4 receiver, HT32 sb xmt. J. G. Touhey, 1632 Union St., San Francisco, Calif.

'48 LINCOLN CONTINENTAL conv. in perf. cond. '56 Olds engine, Hydra-Matic, power steering, power brakes, refrigerated air, new chrome & ww's. Trade for foreign or American. N. D. Stevens, 1612 S. Adams, Roswell, N. M. Phone MA 2-2385.

WANTED

AUTOMOBILE CATALOGS—Any pre-war make or model. Best prices for antique, classic literature; radiator emblems. Send list with prices. I buy anything—not just cream. Lewis A. Mayer, Munitz, Mich.

CORRESPONDENCE from owners of all sorts of independents—passenger, sports or utility, American or imported, new ww's, new chrome, power steering, top, uph., & "U" joints. Over \$4000 invested. HELP, PLEASE! Hubcaps for '30 Buick 6-wire-wheel rdstr. Also set clamp-on windings to fit this car. Need is urgent; any help appreciated. George H. Gentsch, 80 Bond St., Fitchburg, Mass.

INTERIOR TRIM & dashboard for '57 Cadillac conv. If you have, or know the whereabouts of any of these items, call or write S. Gerlach, 134 W. Blaine St., McAadoo, Pa. Phone WAbash 9-2571.

FOR '30 PACKARD Model 726—1 clock, gas gauge, ammeter, frosted backup light lens & switch, thermostat (shutter type) in operating cond. Richard L. Phillips, Box 3, Guadalupe, Calif.

'36 OR '37 ENGLISH AUSTIN taxicab. Send pix & info to Tom Barrie, 7205 W. North Ave., Milwaukee 13, Wis.

'30-'31 FORD 2-dr. deluxe phaeton. Will consider any cond. & pay accordingly. Prefer one in orig. cond. & with all orig. body parts. Harold E. Redinbo, 1139 Cov. Ave., Piqua, Ohio.

'49 OR '50 PLYMOUTH conv. ('49 preferred). Must be in superb orig. cond. Send price, details & pix if possible. James R. Wingfield, 4732 Magoun Ave., East Chicago, Ind. (not Ill.)

'28 CHEVROLET—any body style except coach. Must be immac. or nearly so. Strictly cash sale. Prefer east of Mississippi. Leads appreciated; all replies answered. T. Gustaf Feininger, Brookfield Center, Conn.

MOTOR (N.Y.) issues 1915 thru '41. Annuals & monthlies, automobile trade journals, same yrs. Catalogs & brochures of classics. Paying top prices. Sheldon J. Lewis, 61-33 213th St., Bayside, L.I., N.Y.

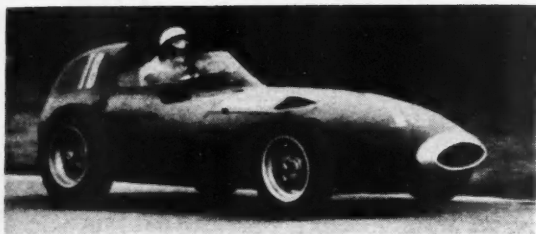
'29 PACKARD Standard phaeton under restoration. Need top bow supports, sidemount mirrors & Packard friends of same interest. R. I. Hoyt, 1115 Chapala St., Santa Barbara, Calif.

ROADSTER OR TOURING CAR in late teens or twenties, either restored or restorable. Please state in your reply price, cond., photo if possible. Roger E. Harp, 710 Riverside Ave., Muncie, Ind.

AS WE GO TO PRESS

UNION JACK AGAIN

British racing prestige had another boost in the Grand Prix of Europe. Stirling Moss in Tony Vandervell's Vanwall finally booted his way into first money on the Aintree circuit near Liverpool after a terrific



struggle. Overseas correspondent Gordon Wilkins said in his report "it was one of the most dramatic motor races seen for years, and there were some moments of high emotion before the Vanwall victory was secure." This is understated—it was a Donnybrook. Moss led for 22 laps until his engine came unstuck and he lost the lead to Behra (Maserati). Starting again in a Vanwall driven by Tony Brooks he fought his way from ninth to first place and broke the lap record with a whistling 90.6 mph in the process. Next in order at the finish were Musso (Ferrari), Hawthorn (Ferrari), Trintignant (Ferrari), Salvadori (Cooper) and Gerard (Cooper-B.G.-Bristol).

NEW MORRIS WAGON

The Morris Oxford Traveller, a two-door wagon with wooden trim has been superseded by an all-steel, four-door model with modern styling. At



the rear is a single upward-opening door for loading goods or luggage. Two bench-type seats have folding armrests, are wide enough for three. Front seat adjusts fore and aft and rear seat can be folded flat to increase load carrying space. Engine is BMC B-type displacing 1489cc with optional compression ratios of 8.3:1 and 7.2:1. Transmission is four speed with column shift. Front suspension is by torsion bars and

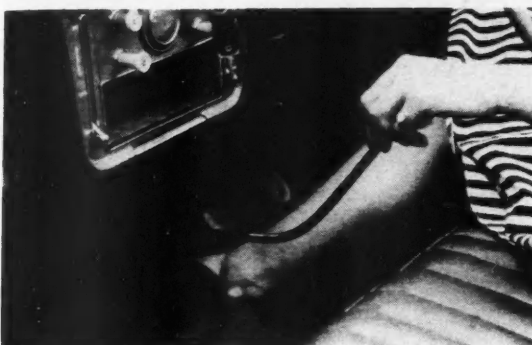
rear by half-elliptics. Oddity is fuel fillers on both sides of body.

BRM MAKES IT!

British tenacity and French determination finally brought a trouble-plagued BRM to its first victory by winning the Grand Prix of Caen in France. Jean Behra led throughout most of the race and was only threatened by Harry Schell in a second BRM which eventually retired because of a blown engine. Gordon Wilkins reported a lack of serious opposition because of the absence of the works Maseratis, Ferraris and Vanwalls but pointed out that this was an encouraging new start. Following Behra home were Salvadori (Cooper) and Halford (Maserati).

HILLMAN MINX TRANSFORMATION

Alexander Engineering of England is now producing a modified, high-performance version of the Minx.



Engine has two SU carbs on special manifold, stiffer valve springs and compression ratio upped from 8.0:1 to 8.6:1. Horsepower jump is from 51 at 4600 to 68 at 5000. Transmission has floor lever and Laycock-Normanville overdrive has been added and works on third and top gears. To improve weight distribution, the battery has been moved from engine compartment to trunk. The car is identified by a second color spear, Alexander emblem, monogrammed wheel discs and bumper guards. Gordon Wilkins reports performance quite impressive. He saw an indicated top of 95 mph and a 0 to 60 time of 15.5 seconds. This conversion may soon be available in the U.S. A new Alexander subsidiary is to be formed with distribution facilities in San Francisco and Detroit or Chicago. (cont'd)

AS WE GO TO PRESS

AS WE GO TO PRESS

cont'd

VOLKSWAGEN CHANGE

In confirmation of a rumor published by MOTOR TREND, Volkswagen has come forth with changes, which if not startling, are at least in keeping with the functional flavor of the car. Most obvious alteration is much larger rear window shown in photo.



Other aids to better vision are narrower front corner posts and slightly larger windshield. Interior changes include restyled instrument panel with large glove compartment and pull-out ash tray. Pedal design



in most models is changed to reduce required pressure. Roller has been eliminated from gas pedal. There are minor changes in trim. No increase in price.

JANUS IN PRODUCTION

Zundapp of Germany has placed a new very small car in production, named for a Roman god with two faces. Front and rear doors similar to Isetta front door provide access. Seating for four passengers is back-to-back. Seats and backrests can be folded flat to form a double bed. Power is a single-cylinder two-stroker developing 14 bhp; transmission has four speeds ahead; suspension is independent on all four wheels. Manufacturer claims 50 mph top speed and 42½ mpg.

MERCEDES CHANGES

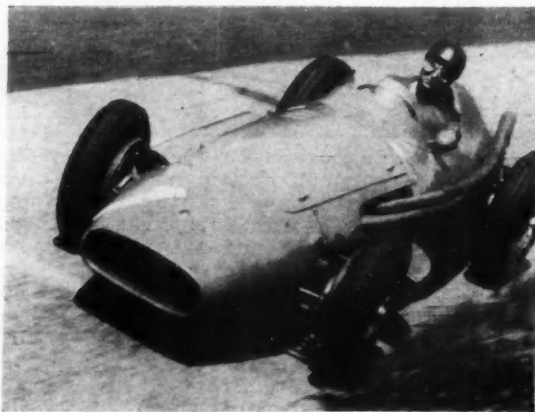
Daimler-Benz has announced changes and improvements in current models. Lowest-priced Type 180 now has 74 bhp, overhead-cam, four-cylinder engine. It is claimed this new mill increases performance by 25 per cent.



The Type 300 Automatic hardtop (photo) has a new body, longer wheelbase and 180 bhp, fuel injection engine plus automatic transmission. "Hydrak" automatic clutch is now optional on Models 219 and 220-S. All models except 300-SL roadster have changes in trim and equipment. No increase in price.

FANGIO CINCHES IT

Juan Manuel Fangio by winning the German Grand Prix on the Nurburgring at Adenau, August 4, gained enough points to win his fifth world championship. Fangio drove a terrific race. The previous lap time was 9:33.9 and considered unbreakable in present formula cars, yet Fangio shaved 16.5 seconds from this mark on lap 20. Says overseas correspondent Gunther Molter, who reported the race, "If there was any doubt before this sensational lap record about Fangio being the best Grand Prix driver of our time, there could be no doubt left that Fangio is the best Grand Prix driver of all time." The champion staged a real grandstand finish by taking the final lead with only one lap to go.



Next to your first threshold, being carried away by your first Triumph is the thrill of a lifetime.

In mere moments after you've settled into your deep, leather bucket seats you're swinging around curves...roaring down the highway...gliding through traffic, hugging the road as though your wheels were on tracks. *This* kind of suspension is for you!

The sleek, low-slung body keeps the center of gravity close to the ground...never a "sway" or "rock." The wishbone-type suspension is firm, compensating for turns or road conditions with independent wheel action that holds its ground with incredible stability. The new Girling disc-type brakes* are *always* at your command - rain or shine. Yes, you're soaring...but you've never been as safe, as sound...as thrilled with driving. So you see love at first sight can end in perfect unity...when your choice is a Triumph!

\$2625. plus tax and license at U.S. ports of entry. (Slightly higher West Coast ports.) Wire wheels, hard-top, rear seat, white wall tires and competition kit, etc. optional extra

SPECIFICATIONS:

BRAKES: *Girling disc brakes on front wheels**

TOP SPEED: 110 MPH

MILEAGE: up to 35 MPG

ENGINE: 4 cyl. (OHV) 1991 cc

OUTPUT: 100 BHP

ACCELERATION: 0-50 in 8 sec.

MAINTENANCE:

Parts and service

available coast to coast!

Free Brochure and

dealer list on request.

Write now - for fun!

**A Triumph-plus...as standard equipment.*



STANDARD-TRIUMPH MOTOR COMPANY, INC., Dept. M10 1745 Broadway, (at 56th St.), New York 19, N. Y.

This kind of suspension is a once-in-a-lifetime thrill!



TRIUMPH TR3
only \$2625

**A 60-second
story that
will save you
\$60
a year or more!**

(more power and power, too!)

The experts were stamped...



Service managers, carburetion specialists and factory experts realized the problems of higher fuel pressures, iron oxides in the gasoline and the increased fuel demands of higher horsepower engines, but...

**Mechanics started
looking for us!**



...we hardly realized how serious the situation was until the trade started hearing actual experiences about Mileage Minder and performance tests were made by service managers and master mechanics...

The word spread like wildfire!



Now, reliable tests have proven that Mileage Minder gives relief from gas waste, rough idling, dying, hard starting, dirt and iron oxides in the gasoline, flooding, traffic stalling, gas odors in the car, vapor lock...

Mileage Minder sold itself!



User told user, and word of mouth advertising quickly spread the news that now at last troubled car owners, fleet operators and car dealers can get quick and positive relief from fuel system problems!

**Guaranteed to make your car
happy—and save you money!**



Big gas savings, smoother idling, reduced carburetor wear, tiptoe power and flashing getaway... freedom from fuel system service worries... without restricting factory recommended fuel pressures.

**Here's How Mileage Minder Is Able to Absolutely Guarantee
More Power, Better Performance and Greater Gas Mileage**

Mileage Minder is the only patented, non-restrictive pressure regulator, pulsation dampener, permanent fuel filter and carburetor protector. Only Mileage Minder employs the exclusive pressure chamber principle which stores fuel thrust and tames it into a steady, clean, economical flow of gasoline to the carburetor.

News of Mileage Minder's success has travelled like wildfire. Mileage Minder leapt to prominence as car dealers and service shops and leading automotive distributors the country over have found that Mileage Minder is the answer to poor gas mileage, flooding, rough idling, traffic stalling, excessive gasoline odors in the car and rapid carburetor wear. Does not restrict factory recommended fuel pressures—no high speed fuel starvation. Positively filters out the dirt, rust chips, metal particles and even the tiny iron oxides that are becoming more and more troublesome to car owners and service dealers. **NOW, try without risk.** You'll save gas, start quicker, get away faster, eliminate galloping idle, vapor lock and stalling... or your money cheerfully refunded. At auto parts stores, car dealers and garages or send us \$6.95, telling us the make, year and model of your car.

MILEAGE MINDER PROMISES AND DELIVERS ALL THIS:

- Big gas savings
- Smoother idling
- No galloping or creeping
- End vapor lock
- Reduce carburetor wear
- End stop-sign stalling
- Filters out dirt and iron oxides
- Tiptoe power, flashing getaway
- Quicker starting
- Smooth power all the way—no surge!
- End high speed fuel starvation
- Halts pressure-impact flooding

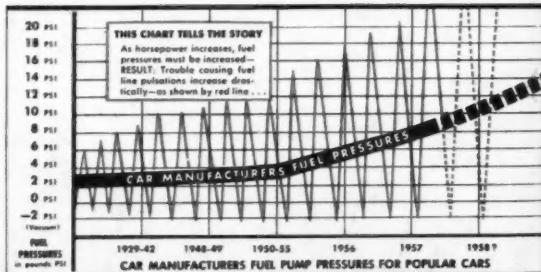
MILEAGE MINDER

Paser Manufacturing Company, 533 Turk St., Dept. MT-10, San Francisco 2, California

Brilliantly chrome plated.
Easily installed between
fuel pump and carburetor
without special tools.
Patent number 2544289.
Price maintained at \$6.95.
Fully guaranteed.



**AS FUEL PRESSURES
GO UP, PROBLEMS GO
UP, TOO.** (See chart below.) Late model automotive fuel systems often reach thrust impacts of 30 lbs. pressure, but Mileage Minder smooths out these damaging impacts to an even steady flow, without restricting manufacturer's recommended fuel pressures. In addition, porous bronze filter removes fuel impurities, including iron oxides that foul up and clog open carburetor needle-seat valves.



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 -

adding iron valves.